CEQA

Air Quality Handbook

GUIDELINES FOR ASSESSING AIR QUALITY AND GREENHOUSE GAS IMPACTS FOR PROJECTS SUBJECT TO CEQA REVIEW

2014

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Butte County Air Quality Management District Mission

Our mission is to protect the people and environment of Butte County from the harmful effects of air pollution.

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List of Acronyms

AAQS	Ambient Air Quality Standards
ACM	Asbestos Containing Material
ADT	Average Daily Trips
AQAP	Air Quality Attainment Plan
ATCM	Air Toxics Control Measure
BAMM	Best Available Mitigation Measures
CAAA	1990 Clean Air Act Amendments
CAP	Clean Air Plan for Butte County
CARB	California Air Resources Board
CBACT	Best Available Control Technology for Construction Equipment
CDPF	Catalyzed Diesel Particulate Filter
CEQA	California Environmental Quality Act
CNG	Compressed Natural Gas
CO	Carbon Monoxide
District	Butte County Air Quality Management District
DOC	Diesel Oxidation Catalyst
(D)EIR	(Draft) Environmental Impact Report
EPA	United States Environmental Protection Agency
H_2S	Hydrogen Sulfide
H&SC	California Health & Safety Code
IS	Initial Study
ITE	Institute of Transportation Engineers
LNG	Liquid Natural Gas
LOS	Level of Service
MND	Mitigated Negative Declaration
ND	Negative Declaration
NESHAP	National Emission Standard for Hazardous Air Pollutants

NOP	Notice of Preparation
NOx	Oxides of Nitrogen
PM_{10}	Particulate Matter (less than 10 microns)
$PM_{2.5}$	Particulate Matter (less than 2.5 microns)
ROG	Reactive Organic Gases
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
TAC	Toxic Air Contaminants
T-BACT	Toxic Best Available Control Technology
TDM	Transportation Demand Management
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds

GLOSSARY

Baseline for Stationary Source Projects: The average of Greenhouse Gas (GHG) emissions for a type of equipment or operation within an identified class and category for a given period of time (for example, as determined by a local Climate Action Plan or Lead Agency), expressed as annual GHG emissions per unit.

Business-as-Usual (BAU): The emissions for a type of equipment or operation within an identified class and category projected for the year 2020, assuming no change in GHG emissions per unit of activity as established for the baseline period as determined by a local Climate Action Plan or Lead Agency. To relate BAU to an emissions generating activity, the District proposes to establish emission factors per unit of activity, for each class and category, using the baseline period as the reference.

Carbon Monoxide (CO) is a colorless, odorless gas. It results from the incomplete combustion of carbon-containing fuels such as gasoline or wood, and is emitted by a wide variety of combustion sources. Exposure to CO near the levels of the ambient air quality standards can lead to fatigue, headaches, confusion, and dizziness. CO interferes with the blood's ability to carry oxygen. Exposure to CO is especially harmful to those with heart disease because the heart has to pump harder to get enough oxygen to the body. CO exposure has been associated with aggravation of angina pectoris and other aspects of coronary heart disease, decreased exercise tolerance in people with peripheral vascular disease and lung disease, impairment of central nervous system functions, and possible increased risk to fetuses.

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.

Diverted Trips: Diverted linked trips, as defined by Institute of Transportation Engineers (ITE), are attracted from the traffic volume on a roadway within the vicinity of the generator but require a diversion from that roadway to another roadway to gain access to the site.

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.

Greenhouse Gases (GHGs): The warming trend in Earth's atmosphere, also known as climate change, is related to the release of greenhouse gases (GHGs) into the atmosphere. The GHGs of main concern are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), hydro fluorocarbons (HFC), chlorofluorocarbons (CFC) and sulfur hexafluoride (F_6S).

Health Risk Assessment (HRA) is a comprehensive analysis of the dispersion of hazardous substances in the environment, their potential for human exposure, and a quantitative assessment of both individual and population-wide health risks associated with those levels exposed. For more information see the OEHHA Air Toxics "Hot Spots" Program Risk Assessment Guidelines (August 2003).

Hydrogen Sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.

Lead is a relatively soft and chemically resistant metal. Lead forms compounds with both organic and inorganic substances. As an air pollutant, lead is present in small particles. Sources of lead emissions in California include a variety of industrial activities. Because it was emitted in large amounts from vehicles when leaded gasoline was used, lead is present in many soils (especially urban soils) and can get re-suspended into the air.

Non-Cancer Acute Hazard Index represents the potential non-cancer health impacts resulting from a one-hour exposure to toxic substances. The total hazard index includes the sum of hazard indices for pollutants with non-cancer health effects that have the same or similar adverse health effects (endpoints). An acute hazard index is calculated by dividing the one-hour concentration of a toxic pollutant by the acute reference exposure level for that pollutant.

Non-Cancer Chronic Hazard Index represents the potential non-cancer health impacts resulting from exposure to toxic substances usually lasting from one year to a lifetime. The total hazard index includes the sum of hazard indices for pollutants with non-cancer health effects that have the same or similar adverse health effects (endpoints). A chronic hazard index is calculated by dividing the annual average concentration of a toxic pollutant by the chronic reference exposure level for that pollutant.

Odors: The evaluation of potential odor impacts pertains directly to the following question regarding air quality from the Environmental Checklist Form (Appendix G) of the State CEQA Guidelines (available here: http://ceres.ca.gov/ceqa/guidelines/Appendix_G.html):

III.e. Would the project create objectionable odors affecting a substantial number of people?

The following are common odor sources: agricultural and food processing facilities, landfills, composting facilities, and wastewater treatment plants.

Ozone: Important ingredient of smog, a result of gaseous compounds formed by the process of photochemistry. Ozone is a highly reactive and unstable gas capable of damaging the linings of the respiratory tract. Key pollutants involved in ozone formation are reactive organic gases (ROG) and nitrogen oxides (NO_x), which are known as ozone precursors. Sources of these precursors include chemicals directly emitted from vehicles, industrial plants, and many other sources.

During 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 late afternoon, at the end of the longest period of daily solar radiation. After the sun sets, the chemical reaction between nitrous oxide and ozone begins to dominate and ozone decreases.

Nitrogen Dioxide (NO_2) is a reactive, oxidizing gas capable of damaging cells lining the respiratory tract. This pollutant is also an essential ingredient in the formation of ground-level ozone pollution. NO_2 is one of the nitrogen oxides emitted from high-temperature combustion processes, such as those occurring in trucks, cars and power plants. In the presence of sunlight, complex reactions of nitrogen oxides with ozone and other air pollutants produce the majority of NO_2 in the atmosphere. Indoors, home heaters and gas stoves also produce substantial amounts of NO_2.

Exposure to NO_2 along with other traffic-related pollutants, is associated with respiratory symptoms, episodes of respiratory illness and impaired lung functioning. Studies in animals have reported biochemical, structural, and cellular changes in the lung when exposed to NO_2 above the level of the current state air quality standard. Clinical studies of human subjects suggest that NO_2 exposure to levels near the current standard may worsen the effect of allergens in allergic asthmatics, especially in children.

Particulate Matter (PM): is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. Particles 10 microns or less in diameter are defined as “respirable particulate matter” or “PM_{10}.” Fine

particles are 2.5 microns or less in diameter ($PM_{2.5}$) and can contribute significantly to regional haze and reduction of visibility in California.

Extensive research indicates that exposure to outdoor PM_{10} and $PM_{2.5}$ levels exceeding current air quality standards is associated with increased adverse health impacts from lung and heart-related respiratory illnesses.

Primary Trips: Trips made for the specific purpose of visiting the proposed facility.

Sensitive Receptors: Sensitive receptors are 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 units. The location of sensitive receptors is needed to assess toxic impacts on public health.

Smart Growth: Smart growth is an urban and transportation planning concept that concentrates new development and redevelopment in areas that have existing or planned infrastructure to avoid sprawl. Smart growth is characterized by compact, transit-oriented, bicycle-friendly land use, with neighborhood schools, walkable streets, mixed-use development and a wide range of housing choices. Its purpose is to conserve valuable natural resources through the efficient use of land, water and air; create a sense of community and place; expand transportation, employment, and housing choices; distribute the costs and benefits of development in an equitable manner; and promote public health.

Sulfur Dioxide (SO_2) is a gaseous compound of sulfur and oxygen. SO_2 is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives, ships, and off-road diesel equipment. SO_2 is also emitted from several industrial processes, such as petroleum refining and metal processing.

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.

Toxic Air Contaminants (TACs) are airborne pollutants that may be expected to result in an increase in mortality or serious illness or which may have the potential to cause a hazard to human health. Section 5 discusses sources of TACs and health impacts.

Visibility-Reducing Particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.

Vinyl Chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Volatile Organic Compounds (as defined by 40 CFR 51.100(s)) are any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions.

EXECUTIVE SUMMARY

Purpose

This Handbook provides guidance for applicants and lead agencies to comply with the requirements of the California Environmental Quality Act (CEQA) when evaluating potential air quality and greenhouse gas impacts that may occur with a proposed project. Included is information and approaches necessary to analyze air quality impacts, screening criteria to determine the extent of the analysis, approaches to modelling and determining the significance of impacts, and mitigation of impacts that are significant.

District Mission and Local Air Quality

The Butte County Air Quality Management District (District) is responsible for attainment of the National and California Air Quality Standards in Butte County. Depending upon the project, the District may act as a lead agency, responsible agency or, most often, a commenting agency when reviewing CEQA documents. The District's primary role when reviewing projects is to evaluate their consistency with ambient air quality standards and the provisions of the State Implementation Plan (SIP) and regional Northern Sacramento Valley Planning Area 2012 Triennial Air Quality Attainment Plan (Attainment Plan) as required by the Federal and State Clean Air Acts. Lead agencies should provide the District with all notices of exemption, initial studies and environmental impact reports for review. In addition to its role under CEQA, the District's mission includes adopting and enforcing rules and regulations (some of which may be applicable to projects being considered by lead agencies).

The District web site (www.bcaqmd.org) provides the County's current attainment status, air quality trends, and rules and regulations that may be applicable to projects under consideration by lead agencies. Table ES-1 provides Butte County's attainment status as of September 2014:

Table ES-1. Butte County Ambient Air Quality Attainment Status - September, 2014

Pollutant	State Designation	Federal Designation
1-hour ozone	Nonattainment	--
8-hour ozone	Nonattainment	Nonattainment
Carbon monoxide	Attainment	Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
24-Hour PM10	Nonattainment	Attainment
24-Hour PM2.5	No Standard	Nonattainment
Annual PM10	Attainment	No Standard
Annual PM2.5	Nonattainment	Attainment

Source: Butte County Air Quality Management District, 2014

Analysis of Air Quality and GHG Impacts

A project's potential impact to air quality is determined by evaluating the types and levels of direct and indirect emissions associated with the project and their effect upon existing (baseline) air quality conditions and neighboring land uses. The primary pollutants of concern for CEQA analysis – criteria air pollutants, toxic air contaminants, greenhouse gases, and such other pollutants as odors and naturally occurring asbestos (collectively referred to as air pollutants) – are identified and discussed separately. Although approaches to screening and modeling vary according to the pollutant, the Handbook's organization follows the general sequence for analyzing and mitigating non-exempt, discretionary project impacts under CEQA (also summarized in Chart ES-1 at the end of this Summary):

1. Establish a thorough project description, including an inventory of air pollutants resulting from construction and operation of the project. The inventory of emissions should include those from both construction and operation of the project, and be summarized in a table with adequate discussion in the project description regarding emission sources and their timing (i.e., duration and project phasing, if any).
2. Describe the environmental and regulatory setting within which the project will occur. The environmental setting includes local land use, topography, vegetation, weather, and sources of air pollutants that influence air quality and air quality trends over time. The regulatory setting includes a succinct discussion of the District's ambient air quality attainment status, the provisions of the Northern Sacramento Valley Air Quality Attainment Plan, California and Federal air quality standards, and greenhouse gas reduction policies, as applicable. This information is presented in this Handbook and is available at the District web site.
3. Evaluate potential impacts to air quality and global climate change by using screening tools (located in their respective chapters below) appropriate for the pollutant in question. If the project meets applicable screening criteria, the lead agency may assume a less than significant impact for the pollutant.
4. Project emissions should be quantified by appropriate modeling methods if the project does not meet applicable screening criteria or involves:
    a. Significant material transport (e.g., greater than 10,000 cubic yards);
    b. Grading in contaminated soils or in areas with suspected or known naturally-occurring asbestos (see Section 7.2);
    c. Simultaneous construction of more than one land use type (not applicable to high density infill development);
    d. Only a construction phase; that is, the project has no operational land use component, (for example, a road construction or levee project); or
    e. Preparation of an environmental impact report.
5. Determine the impact significance for each pollutant that is modeled (see Table ES-2). The impact analysis should include an evaluation of the project's direct or primary, indirect or secondary, and cumulative impacts. If the impact is significant, mitigation measures must be implemented to reduce the impact to the maximum extent feasible.
6. If mitigation measures cannot reduce impact(s) to a less than significant level, the lead agency must adopt a Statement of Overriding Considerations pursuant to CEQA Guidelines Section 15093 if it wishes to approve the project.

With adequate descriptions of the project and its setting, the impact analysis thus follows a sequential approach (first screening and then, if necessary, modeling) requiring increasing effort and data to reach a significance determination based upon substantial evidence.

Best Management Practices

All projects should implement best practices to reduce air pollutant emissions during construction and operation. Best practices during construction include measures to minimize fugitive dust and unnecessary engine idling; during operation they include compliance with applicable District rules and regulations for stationary sources. Best practices, which may apply to more than one category of pollutant, should be incorporated into a project's description as commitments by the applicant and are distinct from mitigation measures. Lists of best practices and standard mitigation measures – many of which also apply to more than one category of pollutant – are included in Appendix C.

Stationary Sources

Stationary sources subject to District permitting should be included in the project description but evaluated separately from the land-use related mobile and area source emissions associated with a project. The District should be notified early in review process when a project includes a stationary source.

Screening Criteria

Each of the air pollutant categories discussed in the Handbook has its own screening criteria:

- Table 4-1 provides screening criteria for **criteria air pollutants** (Section 4.3).
- For **toxic air contaminants,** screening criteria involves certain tools for impacting (*Type A*) projects (Section 5.4.1) and buffer distances around proposed (*Type B*) projects affected by an existing source (Section 5.4.2).
- For **greenhouse gases**, projects that are consistent with a lead agency's greenhouse gas reduction plan do not require further quantification (Section 6.2). Projects in jurisdictions without a reduction plan should quantify their greenhouse gas emissions and may choose to evaluate results relative to state goals (for example, those derived from AB 32) or those of a neighboring jurisdiction (that has a similar air quality setting) with a reduction plan or some other adopted threshold.
- Screening criteria for **odors** (Section 7.1.2) and **naturally-occurring asbestos** (Section 7.2.2) relate to distance between the disturbance and receptors, and the characteristics of the disturbance area, respectively.

If a project meets the applicable screening criteria, it may be assumed to have a less than significant impact upon the environment under CEQA; if not, modelling should be done to further analyze a potential impact. When relying on screening criteria, lead agencies should provide a reasoned discussion that the criteria, and the assumptions behind the criteria, are applicable to the whole of a project. Applicants and lead agencies should not assume that if a project meets the screening criteria for one category (e.g., criteria air pollutants) it will also have a less than significant impact for others (e.g., GHGs). Again, if a project meets any of the exceptions listed in 4 (a) – (e) above, emissions should be quantified regardless of whether or not the project meets screening criteria.

Modeling and Thresholds of Significance

Depending upon the project and the pollutant(s) in question, there are several approaches to modeling emissions. For criteria air pollutants, diesel PM and GHGs, the district recommends the latest version of CalEEMod (software and guidance are available at www.caleemod.com). CalEEMod's default values for project characteristics may be used to the extent project details are unavailable; however, project-specific information should be evaluated whenever possible to meet CEQA's substantial evidence requirement (see CEQA Guidelines Section 15384). Toxic air contaminants require different modeling approaches (for example, a health risk assessment for diesel PM) that are discussed in Section 5. Significance determinations made on the basis of modeling should include tables and discussion in the environmental document, as necessary. Model files should be provided to the District in their native (not pdf) format.

Table ES-2 summarizes the District's thresholds for criteria air pollutants, toxic air contaminants and greenhouse gases. Thresholds for criteria air pollutants are based upon District Rule 430 *State New Source Review (SNSR)* (see Appendix A), which incorporates stationary permitting significance thresholds for ambient air quality standards as required by California Health and Safety Code Section 40918. The District has only established thresholds of significance for criteria air pollutants; while it provides guidance with regards to impacts related to toxic air contaminants and GHGs, determination of

significance is at the discretion of the lead agency and must be based upon substantial evidence in light of the whole of the record for the project in question.

Handbook Organization

Section 1 provides introductory information regarding the Handbook, District responsibilities, projects subject to and exempt from CEQA, and consultation with the District.

Section 2 provides the District's expectations regarding analysis of air quality and greenhouse gas emissions, including guidance for responses to the Air Quality, Greenhouse Gases, and Hazardous Emissions sections of the CEQA Guidelines Appendix G Environmental Checklist.

Section 3 provides the basic information in the environmental document necessary for the District to evaluate impacts to air quality and greenhouse gases, including the project description (construction and operational phases, emissions inventory), and the environmental and regulatory setting.

Sections 4, 5, 6 and 7 provide the District's approach to evaluating criteria air pollutants, toxic air contaminants, greenhouse gases, and other air quality impacts (odors and naturally occurring asbestos), respectively, including guidance for screening, modeling, determining the significance of impacts, and mitigation.

Section 8 provides references for additional information.

Appendix A provides background information regarding federal, state and local regulation of air quality and global climate change, including the national and state ambient air quality standards.

Appendix B provides information on the air quality setting in Butte County and the northern Sacramento Valley.

Appendix C provides best practices and mitigation measures to reduce project air quality and greenhouse gas emissions, and the District's rules and regulations that are potentially applicable to discretionary projects.

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Table ES-2. District Air Quality Thresholds of Significance for Criteria Air Pollutants and Recommended Thresholds for Greenhouse Gases and Toxic Air Contaminants.

Pollutant	Construction-Related	Operational-Related
ROG	137 lbs/day, not to to exceed 4.5 tons/year	25 lbs/day
NOx	137 lbs/day, not to exceed 4.5 tons/year	25 lbs/day
PM < 10 microns (PM_{10} or smaller)	80 lbs/day	80 lbs/day
Non-Stationary Source GHGs	Same as Operational Thresholds	**No Adopted Threshold**. Recommend compliance with Qualified Greenhouse Gas Reduction Strategy, Lead Agency's threshold, or consistency with goals of AB 32
Stationary Source GHGs	Same as Operational Thresholds	**No Adopted Threshold**. Recommend compliance with Qualified Greenhouse Gas Reduction Strategy, Lead Agency's threshold, or consistency with goals of AB 32
New Source Toxic Air Contaminant Risks and Hazards - Individual Project	Same as Recommended Operational Thresholds	**No Adopted Threshold**. Recommend mitigating below: Increased cancer risk of > 10 in one million
		Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute)
		Ambient Diesel $PM_{2.5}$ increase > 0.3 ug/m^3 annual average
		Zone of Influence: 1,000-foot radius from parcel(s) of source or receptor
New Receptor Toxic Air Contaminant Risks and Hazards - Individual Project	Same as Recommended Operational Thresholds	**No Adopted Threshold**. Recommend mitigating below: Increased cancer risk of > 10 in one million
		Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute)
		Ambient Diesel $PM_{2.5}$ increase > 0.3 ug/m^3 annual average
		Zone of Influence: 1,000-foot radius from parcel(s) of source or receptor
New Source Toxic Air Contaminant Risks and Hazards - Cumulative Impacts	Same as Operational Thresholds	**No Adopted Threshold**. Recommend mitigating below: Cancer Risk > 10 in a million from all local sources
		Non-Cancer Risk > 1.0 Hazard Index (from all local sources - chronic)
		Diesel PM2.5 > 0.8 ug/m3 annual average
		Zone of Influence: 1,000-foot radius from parcel(s) of sources or receptors
New Receptor Toxic Air Contaminant Risks and Hazards - Cumulative Impacts	Same as Recommended Operational Thresholds	**No Adopted Threshold**. Recommend mitigating below: Increased cancer risk of > 10 in one million
		Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute)
		Ambient Diesel $PM_{2.5}$ increase > 0.3 ug/m^3 annual average
		Zone of Influence: 1,000-foot radius from parcel(s) of sources or receptors

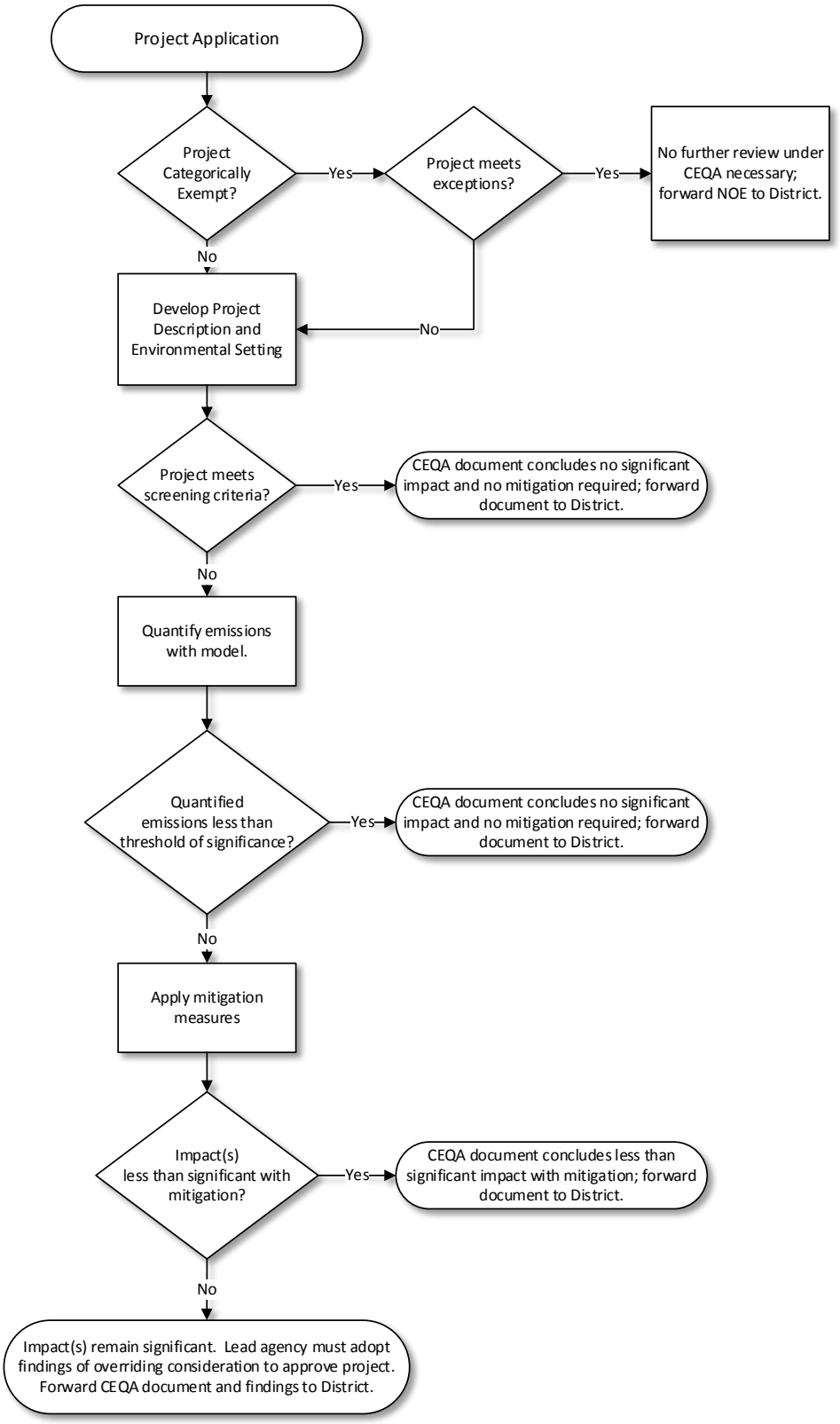

Chart ES-1. General Process for Analysis and Mitigation of Air Quality and Greenhouse Gas Impacts.

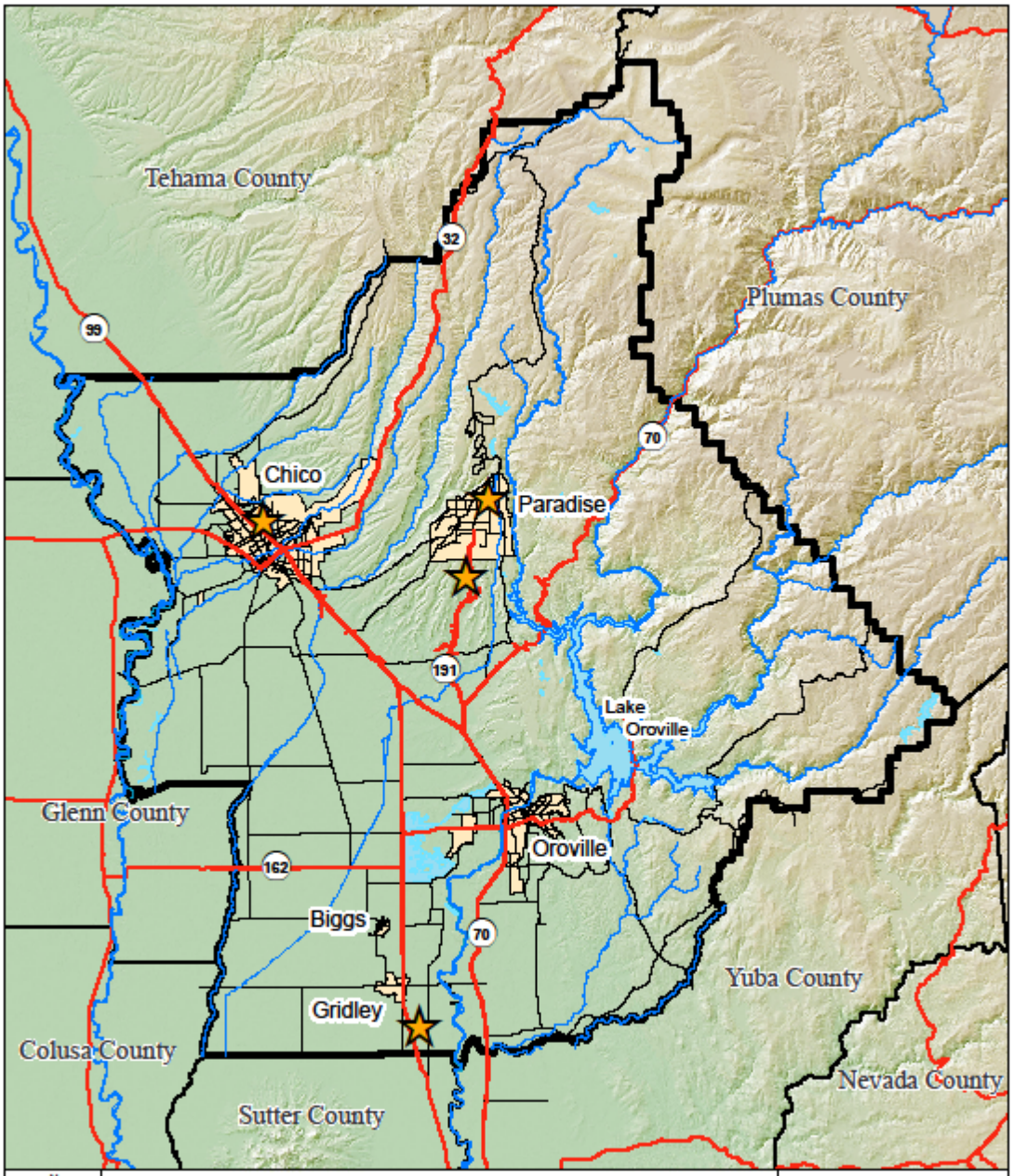

Figure 1

Butte County and Incorporated Cites

Air Quality Monitoring Stations

1 INTRODUCTION

This section provides basic information regarding the Handbook, District responsibilities, air quality and greenhouse gas analysis under CEQA, and consultation with the District.

1.1 Purpose and Use of this Handbook

The Butte County Air Quality Management District (the District) has prepared this handbook to assist lead agencies and project applicants in complying with the requirements of the California Environmental Quality Act (CEQA) when evaluating potential air quality impacts that may occur with a project proposed in Butte County or its incorporated cities.

CEQA requires that environmental impacts of proposed projects be identified, assessed and, if significant, avoided or mitigated to the maximum extent feasible. Projects, in particular land development projects, may generate harmful air pollutants that degrade air quality and greenhouse gases that affect global climate change. Guidance is provided to determine the type of analysis that should be performed, the significance of the impacts predicted by the analysis and, if necessary, the mitigation measures needed to reduce impacts. The primary pollutants of concern – criteria air pollutants, toxic air contaminants, greenhouses gases (GHGs), odors and asbestos – are identified and discussed separately in their respective regulatory contexts.

This Handbook is an advisory document and shall not be interpreted as limiting a lead agency's authority to adopt a statement of overriding consideration for projects with significant air quality impacts.

1.2 Role of the District

1.2.1 CEQA Review

The District takes on one of three roles in the CEQA process. Depending on the nature of a proposed project, the District acts as a:

- **Lead Agency** when it has the primary authority to implement or approve a project, such as when it adopts air quality plans for the region, issues stationary source permits, or adopts rules and regulations.
- **Responsible Agency** when it has limited discretionary authority over a portion of a project, but does not have the primary discretionary authority of a lead agency. As a Responsible Agency, the District may coordinate the environmental review process with the lead agency regarding the District's permitting process, provide comments to the lead agency regarding potential impacts, and recommend mitigation measures.
- **Commenting Agency** when it has "jurisdiction by law" over a particular natural resource, but does not exercise discretionary approval over a project. For example, under the Federal and the California Clean Air Acts, the District is tasked with implementing certain programs and regulations in Butte County to improve and maintain air quality. CEQA Guidelines §15004(b)(2) requires lead agencies 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…."

Although the District has no statutory authority over land-use, nearly all discretionary projects in Butte County, from general plans to individual development applications, have the potential to

result in pollutants that will worsen air quality and make it more difficult for the District to achieve national and State air quality attainment standards. In order to most efficiently carry out its commenting responsibilities, the District requests that lead agencies submit all Notices of Exemption, Initial Studies, Notices of Preparation, Draft and Final EIRs, and Mitigation and Monitoring Plans for review at the earliest possible date.

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

- Accuracy of the air quality and greenhouse gas (baseline) setting;
- Appropriate use of screening criteria and modeling assumptions;
- Whether air quality and greenhouse gas impacts are adequately described;
- Whether the District agrees with the overall conclusions regarding impacts to air quality global climate change: and
- Whether feasible and effective mitigation measures are identified.

At the conclusion of its review, the District may submit comments to the lead agency that identify deficiencies in the air quality and/or greenhouse gas analysis and may suggest approaches to correct the deficiencies. Where appropriate, the District will recommend feasible mitigation measures.

1.2.2 Other District Responsibilities

The District is the primary agency responsible for assuring that the national and California Ambient Air Quality Standards (NAAQS and CAAQS, respectively) are attained and maintained in Butte County, which is one of 35 local air districts in California monitored by the California Air Resources Board (CARB). The District's mission to improve air quality includes adopting and enforcing rules and regulations to attain and maintain air quality standards, issuing permits for and inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring air quality and meteorological conditions, awarding grants to reduce mobile emissions, implementing public outreach campaigns, assisting Butte County jurisdictions in addressing climate change, and updating and evaluating consistency with the Northern Sacramento Valley Air Quality Attainment Plan.

The stationary "direct" sources of air contaminants over which the District has permit authority includes, but are not limited to, power plants, gasoline stations, dry cleaners, internal combustion engines, and surface coating operations. The District does not, however, exercise permit authority over "indirect" emission sources. Indirect sources are contributors to air pollution and include facilities and land uses which may not emit significant amounts of pollution directly themselves, but are responsible for indirect emissions, such as:

- Motor vehicle trips attracted to or generated by a land use;
- On-site combustion of natural gas and propane for heating;
- Architectural coatings (paints, stains) and consumer products; and
- Landscape maintenance.

Emissions from both direct and indirect sources should be identified in the project description. Applicable permit requirements for direct sources should be identified in the project description and included as project conditions of approval. Indirect sources should, if needed, be mitigated through the lead agency land use planning and permitting process under the guidelines and statutes of CEQA. The rules and regulations, permits, Butte County's attainment status with

regard to criteria air pollutants, and a variety of other information are available at the District's web site: http://www.bcaqmd.org/.

1.3 Projects Subject to CEQA

The CEQA Statutes (Public Resources Code Section 21065) define a "project" as the whole of an activity, which may cause either a direct or a reasonably foreseeable indirect physical change in the environment, including:

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; or
4. Other entitlement for use by one or more public agencies.

If a project is not otherwise statutorily or categorically exempt from CEQA review, and if the lead agency will exercise discretion in considering the project for approval, then further analysis (in the form of an initial study or environmental impact report) of the project's potential effects upon the environment is necessary. Typical discretionary projects include:

- Site, area and specific development plans;
- General plan updates and amendments;
- Conditional and special use permits;
- Parcel and subdivision maps;
- Large residential, commercial or industrial developments;
- Surface mining and grading projects; and
- Remediation projects.

1.3.1 Projects Exempt from CEQA

Projects determined to be statutorily or categorically exempt from environmental review pursuant to CEQA would have less than significant individual and cumulative impacts for air quality and GHG emissions. (Note, however, that projects exempt under CEQA must still comply with all applicable District rules and regulations.) Applicants and lead agencies considering a categorical exemption under CEQA should carefully consider the exemption requirements of CEQA Guidelines Section 15300.2 (Exceptions) with regards to air quality and greenhouse gas emissions, in particular sub-sections (a), (b) and (c):

(a) Location. Classes 3, 4, 5, 6, and 11 (see CEQA Guidelines Sections 15303, 15304, 15305, 15306, and 15311, respectively, for class definitions) are qualified by consideration of where the project is to be located – a project that is ordinarily insignificant in its impact on the environment may, in a particularly sensitive environment, have a significant impact upon the environment. Therefore, these class exemptions are considered to apply in all instances, except where the project may have an impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.

(b) Cumulative Impact. All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant.

(c) Significant Effect. 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.

Categorically exempt projects that may emit or be affected by toxic air contaminants may also require environmental review (see Section 5.3.4).

All Notices of Exemption should be forwarded to the District.

1.4 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 [CEQA Guidelines Section15063(a)]. Upon determining that an initial study is 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 [CEQA Guidelines Section 15063(g)].

CEQA guidelines do not specify a time period for informal consultation; however, lead agencies should allow the District a minimum of ten working days for its review and comment. Again, the District requests that lead agencies forward all Notices of Exemption, Initial Studies, Notices of Preparation and Environmental Impact Reports for review. Identification of significant air quality impacts and mitigation measures early in the development process will allow for design changes that benefit air quality at the lowest possible cost to the project proponent. The District invites project proponents, lead agencies, and interested parties to contact District staff or visit the District's office for consultation on the use of this guidance document or project review:

Butte County Air Quality Management District
629 Entler Avenue, Suite 15
Chico, CA 95928
Tel. (530) 332-9400
http://www.bcaqmd.org

2 ANALYTIC AND MITIGATION APPROACH

This section discusses the general approach the District recommends to evaluating and mitigating air quality impacts, applying a level of analysis appropriate for the project description and its setting in order to conclude, based upon substantial evidence consistent with CEQA Guidelines Section 15384, whether or not a significant impact to air quality or greenhouse gases will occur.

The level of analysis will depend upon the complexity of the project, its air pollutant emissions and baseline setting. If less than significant impacts cannot be determined with appropriate screening criteria, emissions should be calculated by modeling.

2.1 Overview

CEQA requires that significant project impacts to air quality and global climate change be mitigated to a less than significant level to the maximum extent feasible. The District recommends applicants and lead agencies take the following general steps in determining whether or not a project's air pollutant and GHG emissions are significant:

1. Prepare Project Description and Baseline Setting: A concise project description and baseline setting that adequately describes the types of emission and their sources, and their relationship to existing air quality and GHG conditions, provides the basis for evaluating a project's potential impacts. The project description should include an inventory of all potential air pollutants from both construction and operation of the project.
2. Screening: Criteria air pollutants, toxic air contaminants, GHGs, odors and asbestos (air pollutants) each have unique characteristics and analytic approaches to determine their impact upon the environment within the context of a project. Screening criteria for each varies; however, if a project meets the applicable screening criteria, then it may be considered to have a less-than-significant impact for that air pollutant. Screening criteria for air pollutants are found in their respective sections.
3. Modeling and Impact Analysis: For projects that do not meet a screening criteria and require further evaluation, criteria air pollutants and GHG emissions that may occur during the construction and operational phases should be quantified through the latest version of CalEEMod or another acceptable modeling approach. Toxic air contaminants require advanced modeling techniques that, although referenced herein, are beyond the scope of this Handbook.
4. Determine Significance: Modeling results for criteria air pollutants should be compared with Table ES-2 (found in the Executive Summary) to determine their significance. The District has not established thresholds of significance for toxic air contaminants and GHGs, and the lead agency must exercise its own discretion for those determinations (although the District is available for consultation).
5. Mitigation and Monitoring: If emissions are determined to be significant, they must be mitigated to a level of less-than-significant to the maximum extent feasible and a monitoring plan that insures implementation of all mitigation measures must be approved. For impacts that cannot be reduced to less-than-significant, the lead agency must adopt a statement of overriding considerations pursuant to the CEQA Guidelines Section 15093 if it wishes to approve the project.

2.2 Project Type

The analytic focus for assessing air quality and greenhouse gas impacts will vary depending upon whether the project is programmatic (such as general plans, land use ordinances) or specific (generally development, conditional and special use projects).

2.2.1 Programmatic Projects

Evaluation of air pollutant effects that may result from adoption of or amendment to general plans and land use ordinances should focus upon potential growth-inducing and cumulative impacts. Changes in land use patterns that could affect emissions of air pollutants include, but are not limited to, changes in:

- Transportation patterns and modes;
- Water and energy use;
- Vegetation and land cover; and
- Disposal of wastewater and solid waste.

2.2.2 Development, Conditional and Special-Use Projects

Development, conditional and special-use projects typically have construction and operational components with the potential to affect air quality and GHGs in distinct ways. The construction phase consists of activities to prepare a site and build a facility. The operation of a project begins when construction is complete and its use(s) commence. Phased projects may have periods when some portions are in construction and others are in operation.

Construction activities with air quality and GHG impacts may include:

- Demolition;
- Vegetation removal;
- Grading, cut and fill;
- Material import/export;
- Equipment and electrical power use;
- Preparation and application of concrete, asphalt and architectural coatings;
- Building construction; and
- Construction crew and vendor vehicle trips and associated emissions.

Operational components with air quality and GHG impacts may include:

- Energy, water and wastewater use;
- Vehicle trips generated by the land use and associated emissions;
- Heating (including hearths and woodstoves), ventilation, air conditioning, appliances;
- Landscaping and landscaping equipment;
- Solid waste; and
- Architectural coatings.

While this Handbook is generally applicable to programmatic projects, the emphasis is primarily on the air quality and GHG analysis of development, conditional and special use projects that typically involve site specific proposals.

2.3 Air Pollutants Subject to Analysis

The principal air pollutants subject to analysis under CEQA are **criteria air pollutants**, **toxic air contaminants (TACs)** and **greenhouse gases (GHGs)**. Additional review is also required for **odors** and various **special situations** such as land-disturbing work in areas with naturally occurring asbestos and the location of a facility for sensitive receptors (i.e., a school, day care center or elder care facility) in the vicinity of an air pollutant source.

Air pollutants disperse through the atmosphere but, depending upon the emission and the physical setting, their potential impact range does vary. Criteria air pollutants tend to be regional, toxic air contaminants local, and greenhouse gases global in effect. More specific information for each pollutant is provided in Sections 4, 5, 6 and 7.

2.4 Analysis Expectations

2.4.1 Adequate Project Description and Baseline Environmental Setting

Evaluation of project impacts related to air quality, hazardous emissions and greenhouse gases depends upon adequate descriptions of the project and its baseline environmental setting. The project description should include a discussion of all on- and off-site project activities and phasing, an inventory of potential pollutant emissions, applicable District permits with which the project must comply, and the best practices that will be implemented to reduce emissions such as fugitive dust and diesel particulate matter. Section 3 provides the District's recommendations for specific project description and environmental setting information that should be included in the environmental document.

2.4.2 Evaluation of Impacts

Sections 15355 and 15358 of the CEQA Guidelines use the terms "effects" and "impacts" interchangeably and define three types:

1. **Direct or primary effects** that are caused by a project and occur at the same time and place.
2. **Indirect or secondary effects** that are not immediately related to the project, but which are caused indirectly by the project.
3. **Cumulative impacts** which refers to two or more individual effects resulting from past, present and reasonably foreseeable future projects which, when considered together, are considerable or which compound or increase other environmental impacts.

CEQA Guidelines Section 15382 defines a significant effect on the environment as "…a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project…" Projects can cause significant impacts by direct physical changes to the environment or by triggering reasonably foreseeable indirect physical changes. Physical changes caused by a project can also contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are not. Lead agencies should consider the potential for direct, indirect and cumulative impacts related to air quality and greenhouse gases from both the construction and operational phases of a project (Table 2-1).

Air pollutants are inherently dispersive in the atmosphere. (Again, TACs, criteria air pollutants and GHGs are generally evaluated as local, regional and global impacts, respectively.) Cumulative impacts may be evaluated by the "list" or "summary of projections" method as

provided by CEQA Guidelines Section 15130. The geographic extent for determining direct and cumulative impacts is at the discretion of the lead agency, may vary according to the pollutant evaluated and, in certain instances, with meteorological conditions. Whatever the geographic extent selected, it should account for the project's potential to "compound or increase" the air quality impacts of other "past, present and reasonably foreseeable future projects" in the vicinity. The geographic extent for determining GHG impacts, which are inherently cumulative and global in their effect upon climate change, should be evaluated according to an applicable Climate Action Plan. If there is no applicable Climate Action Plan, the lead agency may consider the GHG emissions of the project in relation to the goals of Assembly Bill 32 and related legislation (see Appendix A) or according to the criteria used by other jurisdictions with a similar air quality setting. Whatever the extent, it should be based upon substantial evidence in regards to the pollutant and receptors.

Table 2-1. Potential Construction and Operational Impacts to Air Quality

		Impact	
		Direct	**Indirect**
Phase	**Construction**	• Heavy equipment • Demolition • Grading, loss of vegetation • Worker and vendor trips • Energy demand from power tools • Application of asphalt and architectural coatings	• Asphalt and concrete batch plants necessary for project • Local congestion due to construction
	Operation	• Resident, employee, customer or vendor vehicle trips • Energy demand from on-site equipment and appliances • On-site heating and cooling	• Local congestion due to increased traffic • Off-site energy necessary to supply water and treat wastewater • Transport and disposal of solid waste

In the unusual circumstance that a proposed project involves the removal of existing emission sources, those existing emissions levels may be subtracted from the emissions levels estimated for the project if the existing emission sources: (1) were operational at the time that the Notice of Preparation (NOP) for the CEQA project was circulated (or when the environmental analysis began); and (2) would continue if the proposed project were not approved. When emission sources ceased to operate or the land uses were vacated and/or demolished before circulation of the NOP or commencement of the environmental analysis this net calculation cannot be included in the project's emissions analysis.

2.4.3 Screening and Modeling of Impacts

Screening

Once the description and environmental setting have been established, the project may be evaluated by screening criteria appropriate to the inventoried pollutant(s) to determine if a significant impact may occur. Sections 4, 5, 6 and 7 provide screening approaches for criteria air pollutants, toxic air contaminants, greenhouse gases, odors and asbestos, respectively. Lead agencies should provide a reasoned discussion as to how a project is consistent with the applicable criteria for projects determined to have a less than significant effect on the basis of

screening. Note that applicants and/or lead agencies may elect to directly model emissions if it is clear a project will not meet its screening criteria.

Modeling

If screening indicates a project may have a significant impact upon air quality or global climate change – or if the applicant and/or lead agency assumes significant impacts without screening – the project's air pollutant emissions must be modeled. The District recommends the latest version of CalEEMod for calculating emissions of ROG, NOx, CO, and CO_2, GHGs, and dust and exhaust PM. The modeling software and instruction may be downloaded without charge at:

www.caleemod.com

When quantifying air pollutants with CalEEMod (which exports an Excel file) or another accepted emissions model, the native electronic file (not a pdf) should be submitted to the District with the environmental document, along with a summary table showing all daily and, if applicable, annual emissions. The environmental document should include tables as necessary and provide a thorough discussion of the inputs and assumptions made for the estimates. Modeling analysis submitted as part of a CEQA evaluation should include a discussion of summer, winter and annual emissions, including a comparison with the Table ES-2 thresholds.

2.5 CEQA Guidelines Appendix G Environmental Checklist

This section provides the District's general guidance for substantive responses to the Air Quality, Greenhouse Gases, and Hazardous Emissions sections of the CEQA Guidelines Appendix G Environmental Checklist (Sections III, VII, and VIII(c), respectively).

2.5.1 Air Quality (Section III)

The Air Quality Section III addresses the impacts of the project on ambient air quality and the exposure of people, especially sensitive individuals, to hazardous pollutant concentrations. The pollutants of concern include both criteria pollutants and toxic air contaminants. The CEQA Guidelines Appendix G Environmental Checklist Form provides the following significance criteria to determine if a project would:

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

The California Clean Air Act requires preparation of air quality attainment plans for designated National and/or California Ambient Air Quality Standards nonattainment or maintenance areas. In order to meet these standards, attainment plans first project future emissions based upon growth assumptions for the jurisdictions within a given plan area. Measures are then promulgated to limit nonattainment emissions to the required standard. In general, a project conflicts with or obstructs implementation of the applicable attainment plan if it would result in or induce growth in population, employment, land use, or regional vehicle miles traveled (VMT) that is inconsistent with the growth (and therefore the emission projection) assumptions in the applicable attainment plan.

As discussed in Appendix A, the currently applicable air quality plan for the District is the latest edition of the Northern Sacramento Valley Planning Area Air Quality Attainment Plan (at present, the 2012 Triennial Air Quality Attainment Plan). Although the 2012 Attainment Plan provides estimated ROG and NOx emissions from 2006 to 2020 for the entire Northern Sacramento Valley, they are not apportioned by local air district, county or municipality.

Baseline and projected population and vehicle miles travelled data are also not provided by the 2012 Attainment Plan.

The Butte County Association of Governments (BCAG) provides projections for population, employment and VMT for the County through 2035. Until such time as Butte County's applicable air quality plan provides the locally appropriate data necessary to evaluate the consistency of a project's potential air quality impacts (due to non-stationary sources) with the attainment plan's emission projections, the District recommends that lead agencies and applicants evaluate a project's contribution to changes in employment, population and VMT in relation to those projections made by BCAG. BCAG data may be accessed at the following web site:

http://www.bcag.org/Demographics/Growth-Projections/

Note that many of the District's rules (see Appendix A) are intended to meet the attainment goals of the 2012 Northern Sacramento Valley Planning Area Air Quality Attainment Plan. Lead agencies and applicants should discuss project consistency with, for example, Rule 205 (Fugitive Dust Emissions), Rule 230 (Architectural Coatings), Rule 430 (State New Source Review) or other applicable rules.

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

For criteria air pollutants, the air quality standards are provided by the National and stricter California Ambient Air Quality Standards (see Table A-1). Butte County attainment status for each pollutant is given in Table ES-1 and discussed in Appendix A. Updates to the County's attainment status are available at: www.bcaqmd.org and should be checked for changes.

Butte County is currently nonattainment for the State and Federal 8-hour ozone standards, the State 1-hour ozone standard, the Federal 24-hour $PM_{2.5}$ standard, and the State PM_{10} 24-hour standard. Based upon screening or, if necessary, modeling, lead agencies should demonstrate that a project's criteria air pollutants will not exceed the applicable values in the Federal and/or California Ambient Air Quality Standards. If a project meets the screening criteria, it may be assumed that it will not violate or contribute substantially to an air quality standard. If quantification through modeling is necessary, results should be presented in a table with a discussion comparing the project emissions with the standards. The lead agency must make a determination based upon substantial evidence that a project will or will not violate 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);

To respond, and as provided by CEQA Guidelines Sections 15130 and 15355, lead agencies must determine if a project's incremental contribution to a non-attainment criteria pollutant is cumulatively considerable, taking into account either "closely related past, present and reasonably foreseeable probable future projects" or a summary of projections contained in an adopted and applicable planning document. As discussed in Section 2.5 above, the geographic extent of a cumulative impact analysis should be based upon the pollutant, land use and the presence of receptors, the environmental setting (topography and climate), and air quality trends. Again, the geographic extent analyzed should account for the project's potential to "compound or increase" the air quality impacts of other "closely related past,

present and reasonably foreseeable future projects" or in relation to projections made by an adopted planning document. If a list approach is used, a map – preferably with a recent aerial photo base – should be used to provide a visual sense of the project locations and geographic extent evaluated.

If a project meets the Table 4-1 screening criteria subject to the limitations provided in Section 4.2.2 below, it may be assumed that a cumulatively considerable net increase of any criteria pollutant for which Butte County is in non-attainment will not occur.

If modeling and quantification are necessary, the ROG, NOx and PM emission results should be evaluated in relation to past, present and reasonably foreseeable future projects and Table ES-2 to determine significance. The lead agency should provide a reasoned discussion of the geographic extent evaluated and the projects considered for the cumulative analysis. The Table ES-2 significance thresholds are derived from District Rule 430, which in turn is based upon the State ambient air quality standards provided in Appendix A. Projects that do not exceed the Table ES-2 significance thresholds may be assumed to have a less than significant impact in regards to a cumulatively considerable net increase of any criteria pollutant for which the region is non-attainment.

d) Expose sensitive receptors to substantial pollutant concentrations; or

This significance threshold relates to criteria air pollutants, toxic air contaminants (TACs, discussed in Section 5) and pollutants such as asbestos (discussed in Section 7.2). Construction emissions of concern include diesel and other particulate matter. The project's environmental document should present a map – preferably with a recent aerial photo base – showing the whole of the project (that is, its total footprint, components and phases) and any residences, hospitals, nursing homes, day care centers, schools, churches, or other structures or land uses indicating a possible sensitive receptor within 1,000 feet of the project parcel(s). Roads, commercial, and industrial facilities should also be indicated to provide a visual sense of existing emitters of air pollutants in the area. Potential sensitive receptors within 1,000 feet of the project parcel(s) should be identified on the map and their distance from the project provided in a table.

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

The project description should discuss any potential odor emitted by the project including, but not limited to, heavy equipment exhaust. A potential odor impact can occur under two different circumstances: the proposed project would: 1) generate odors that could adversely affect a substantial number of persons in the project vicinity; or 2) locate receptors where they would be affected by an existing odor source. In either circumstance, the discussion should include the lead agency's assessment as to the nature of the odor, its source and dispersal characteristics, noxiousness and anticipated intensity with distance, and surrounding land uses and receptors within 1,000 feet of the project parcel(s). The same map discussed in (d) for sensitive receptors may be used and the lead agency should provide its standards for determining whether or not a significant impact would occur. Reference may be made to similar circumstances elsewhere as a means of comparison. Section 7.1 provides more discussion regarding evaluation of odors.

2.5.2 Greenhouse Gases (Section VII)

Section VII of the CEQA Guidelines Appendix G Environmental Checklist provides the following significance criteria to determine if a project would:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

The District has not established a threshold of significance for GHGs. As it is unlikely that any one project would substantially contribute to global climate change, the District considers GHG impacts to be cumulative in nature and lead agencies should evaluate whether a project's incremental direct and indirect GHG emissions are cumulatively considerable. If the lead agency jurisdiction has adopted a Climate Action Plan or General Plan goals and policies with regard to GHGs, the environmental review should base its analysis on the provisions of those documents. If the lead agency jurisdiction has not adopted a Climate Action Plan or General Plan goals and policies, then the District recommends that lead agencies consider a project's total emissions in relation to the AB 32 and AB 32 Scoping Plan goals (and additional state goals as they are promulgated) or the thresholds established by other jurisdictions. Applicants and lead agencies are referred to Section 6.3 and Appendix A of this Handbook for more discussion regarding GHGs.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Climate Action Plans set out GHG baseline inventories, reduction goals and various measures to achieve those goals. Lead agencies should evaluate projects according to their compliance with their Climate Action Plan. If a project is implementing the measures stipulated by its Climate Action Plan or the goals and policies of its General Plan, the lead agency may determine that it will have a less-than-significant impact on global climate change. Until such Climate Action Plans and/or General Plan goals and policies are adopted, and for jurisdictions in Butte County without a Climate Action Plan, the District recommends that lead agencies evaluate the project's total GHG emissions according to the goals of AB 32 and the AB 32 Scoping Plan or those of other jurisdictions.

2.5.3 Hazards and Hazardous Materials (Section VIII)

Section VIII(c) of the CEQA Guidelines Appendix G Environmental Checklist provides the following significance criteria to determine if a project would:

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

In this context, hazardous emissions are those with potential ill-health effects upon students and/or school staff, including (but not limited to) particulate matter, carbon monoxide, certain TACs and VOCs. The same map discussed in Section III(d) for sensitive receptors may be used in a discussion of potential impacts upon students and the lead agency should provide its standards for determining whether or not a significant impact would occur. Applicants and lead agencies should consult with the District when screening criteria are not met to determine if a health risk assessment should be prepared. More information on TACs is provided in Section 5.

2.6 Mitigation

CEQA requires the implementation of all feasible mitigation measures for impacts that are determined to be significant to reduce them to a less-than-significant level. The CEQA Guidelines Section 15370 definition for mitigation includes:

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

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

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

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

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

CEQA does not require mitigation measures that are infeasible for legal, economic, technological, or other reasons.

There are four broad approaches to mitigating impacts to air quality and GHGs:

1. The project or activity can be avoided so emissions are not created;
2. The project or activity can be modified so that it creates fewer emissions;
3. Emission control technology or actions can be applied to the project or activity to reduce or prevent release of emissions; and, in the case of GHGs,
4. Released emissions can be sequestered in the environment so they do not contribute to global warming or mitigated off-site through monetary support of an approved GHG reduction program.

In general, project emissions and mitigation measures to reduce those emissions are measured according to a *source metric* and its *emission factor*. The source metric is the emissions' unit of measure. For example, the metric for transportation sources is vehicle miles traveled and "energy intensity" or the energy demand per square foot of building space is the metric for energy used by a structure. Reduction of source emissions involves measures that reduce its particular metric. Thus land use or transportation demand policies reduce vehicle-related emissions by reducing vehicle miles travelled. These reductions are often termed avoided emissions.

The emission factor is the rate at which emissions are generated per unit of source metric. Emission factors are reduced when there are fewer emissions generated per unit of the source metric. For example, when electricity from photovoltaics is substituted for grid electricity (that is, a carbon-neutral for a carbon-intensive energy source), or when electricity is used instead of gasoline to power a car, the emission factor is reduced.

On-site mitigation thus includes technical approaches to reducing emissions and modification of how a project is constructed and operates. Off-site mitigation includes payment to a fund that is used, for example, to reduce emissions or energy demand elsewhere.

Appendix C includes a list of standard mitigation measures for criteria air pollutants, diesel particulate matter, and GHGs; many measures have the ability to reduce more than one pollutant and may apply during both the project's construction and operational phases. Additional discussion specific to mitigation of criteria air pollutants, toxic air contaminants, greenhouse gases, odors and naturally-occurring asbestos, are included in their respective sections. As discussed in Sections 4 and 6 below, criteria air pollutant and GHG emissions and mitigation measures to reduce those emissions may be measured using modeling programs such as CalEEMod. Estimating toxic air contaminants and their mitigation require other methods that are discussed in Section 5.

CEQA requires that mitigation measures be enforceable; lead agencies must verify that mitigation measures are fully implemented through a monitoring and reporting program (CEQA Guidelines Section 15097). For a Mitigated Negative Declaration, individual mitigation measures typically identify the lead agency entity that will monitor the measure to insure proper implementation. Mitigated Negative Declarations sent to the District should clearly identify the responsible party (for example, the Planning Division, the Department of Public Works, Environmental Health, etc.), and its specific mitigation monitoring and reporting responsibilities.

For EIRs, a comprehensive Mitigation, Monitoring and Reporting Plan must be prepared specifying the specific mitigation measures and actions, and the party responsible for implementation, monitoring and reporting. The District recommends that a draft version of the Mitigation, Monitoring and Reporting Plan be submitted with the Draft EIR for its review.

CEQA Guidelines Section 15126.4(c) provides the following specific guidance for mitigation measures related to greenhouse gas emissions:

> "Consistent with Section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. Measures to mitigate the significant effects of greenhouse gas emissions may include, among others:
>
> 1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;
>
> 2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures, such as those described in [CEQA Guidelines] Appendix F;
>
> 3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions;
>
> 4) Measures that sequester greenhouse gases;
>
> 5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions."

The environmental document should demonstrate the quantity of reductions that will be achieved with mitigation using CalEEMod or another acceptable model.

3 BASIC INFORMATION FOR THE ANALYSIS

The essential function of the impact analysis is to determine the significance of a project's effect upon the non-project or baseline setting. The proper scope of that analysis depends upon an adequate description of the project and its environmental setting as they pertain to existing and potential changes to air quality and GHGs.

3.1 Project Description

A thorough, stable description of the whole of the project is necessary to understand its potential effects upon the baseline environmental setting. In order to facilitate screening and, if necessary, modeling of air quality and greenhouse gas emissions, the District further recommends separate descriptions of both the **construction** and **operational** phases of the project that are sufficiently detailed to allow an understanding of the types and timing of emissions that will occur.

The District is aware that the level of detail for project descriptions prepared by applicants varies considerably. For some development projects, detailed construction and operational information may be premature or otherwise not available. Note, however, that the due diligence often performed by applicants may contain estimates of, for example, construction costs based upon a breakdown of equipment, material, labor and time necessary to complete the project. If such information is available, it should be used to model air quality and GHG impacts for those projects that do not meet the Table 4-1 screening criteria.

In order to provide the most accurate assessment of air quality and greenhouse gas impacts – and consistent with the CEQA Guidelines Section 15124 (Project Description) – the District recommends that lead agencies provide the following information in the environmental document's project description:

a) To the extent possible, the precise location, assessor's parcel(s), boundaries and components (e.g., structures, roads, parking lots, and landscaping) of the proposed project should be shown on a detailed map or maps that include a current aerial photo base layer at a resolution adequate to visually understand the project footprint and its setting. The project location should also appear on a regional map. Additional maps showing topography, hydrography, land use, vegetation and soils within the project site and vicinity should also be prepared to the extent they will assist in understanding any loss of vegetation, grading, cut and fill volumes, and potential fugitive dust emissions within the context of surrounding land uses and conditions.

b) A clearly articulated statement of objectives sought by the proposed project that will help the District understand the reasons for air quality and greenhouse gas emission impacts (if any). Should an EIR be required, a statement of objectives will help explain a reasonable range of alternatives and, if necessary, a statement of overriding considerations.

c) A general description of the project's technical, economic, and environmental characteristics, including the principal engineering processes (if any) and supporting public service facilities and services (e.g., roads, public transit, power supply, water, wastewater and solid waste).

3.1.1 Construction Phase

The construction phase includes site preparation and construction of project components such as parking lots, site infrastructure and buildings. The primary emissions of concern during construction include exhaust emissions of particulate matter (e.g., diesel PM) and oxides of nitrogen (NOx) from fuel combustion that powers heavy duty equipment, fugitive dust from soil disturbance and demolition, evaporative emissions of reactive organic gases (ROG and VOC) from paving and the application of architectural coatings (e.g., paints and solvents), and exhaust emissions of GHGs such as carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O).

Construction activities can generate a significant amount of air pollution. In some cases, the emissions from construction represent the largest air quality impact associated with a project. While construction-related emissions are considered temporary, these short-term impacts can contribute to the pollution load recorded at monitoring stations and exceedances of air quality standards.

The most common construction activities include site preparation, earthmoving and general construction. Site preparation includes general land clearing and grubbing; earthmoving activities include cut and fill operations, trenching, soil compaction, and grading: and general construction includes adding improvements such as roadway surfaces, structures and facilities. In some cases, a project requires existing buildings and other obstacles to be demolished as part of site preparation.

The emissions generated from these common construction activities include fugitive dust from soil disturbance, fuel combustion from mobile heavy-duty diesel- and gasoline-powered equipment, portable auxiliary equipment, and worker commute trips. CalEEMod can be used to quantify both diesel and fugitive dust PM emissions associated with grading and earthmoving. During construction, fugitive dust, the dominant source of PM_{10} emissions, is generated when wheels or blades disturb surface materials. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. Demolition and renovation of buildings can also generate PM_{10} emissions, and is of particular concern if the building(s) contain any asbestos-bearing materials. An asbestos survey of the existing structure may be required prior to any renovation or demolition activity. If you have any questions concerning asbestos related requirements, please contact the District.

Off-road construction equipment is often diesel powered and can be a substantial source of NOx emissions. Typical construction equipment includes scrapers, tractors, dozers, graders, loaders, and rollers. The CalEEMod construction equipment defaults allow for a wide range of scenarios. Where specific information concerning construction activities is known at the time the CEQA document is being prepared, the District recommends modifying the construction equipment assumptions to reflect real-world project conditions. All changes to defaults should be clearly identified and supported.

Consideration of potential impacts of construction-related emissions of criteria air pollutants, toxic air contaminants, GHGs and other air pollutants should include the following information in a narrative and tabular format, as appropriate:

- Demolition - any structure(s) that need to be demolished in order for the project to proceed should be described in terms of area and volume, with an estimate for the equipment and time necessary to remove the structure(s) and dispose of debris;

- Site preparation – area affected, vegetation removed and grading (including cut/fill, material import/export) required for structures, roads, parking lots, infrastructure (on and off-site utilities);
- Facilities – roads and parking lots (paving type), structures, infrastructure, landscaping, architectural coatings (paints, stains);
- Equipment – construction equipment and fuel type, construction personnel and vendor trips;
- Best practices – use of best management practices (Appendix C) to minimize combustion and particulate matter emissions; and
- District rules – identify applicable District rules with which the project must comply (Appendix A).

An inventory of emissions and their sources should be provided in a table and evaluated in the context of project timing, phasing and duration. Again, although construction emissions are relatively short-term, even temporary emissions can have significant impacts on air quality. The more detail provided for construction activities in the project description, the better potential air quality and GHG impacts can be evaluated and, if necessary, quantified through modeling.

3.1.2 Operational Phase

The operational phase begins with the end of construction and the start of the project use(s) as defined by the project objective. Fuel and energy expended for a variety of operational activities, including induced traffic, lighting and heating, provision of water and disposal of wastewater, and volatilization of organic compounds from asphalt and architectural coatings, have the potential to result in emissions. Analysis of potential impacts of operational-related emissions of criteria air pollutants, toxic air contaminants, GHGs and other air pollutants relies upon the following information:

- The nature of operational activities including the emission sources and level of activity associated with each (e.g., energy demand and induced traffic); and
- The earliest time when operational emissions are anticipated to commence. If a project will be constructed in phases and portions will become operational after each phase, then the timing should be disclosed in a narrative and tabular format.

For projects that do not meet the Table 4-1 screening criteria, quantification of emissions should be made using CalEEMod or other appropriate modeling software. A transportation study can provide data to determine the vehicular emissions associated with a project, such as customer, employee and resident trips. Estimates should also be developed for emissions resulting from the energy necessary for lighting and heating, provision of water, and the handling of wastewater and solid waste.

As a guide, lead agencies and applicants may discuss, to the extent applicable, a project's consistency with the state CEQA Guidelines Appendix F (Energy Conservation), which includes the following categories.

Energy Consumption and Conservation

- List equipment (machinery, heating and cooling, lighting, vehicles and landscaping equipment, etc.) used in the operation of the project, including equipment and design features intended to reduce energy consumption.
- Provide an estimate of their energy requirements, and the total energy requirements for operation of the project by fuel type.
- Describe the effects of the project on local and regional energy supplies and on requirements for additional capacity, if any.
- Describe the effects of the project on peak and base period demands for electricity and other forms of energy.
- Describe the degree to which operation of the project complies with existing energy standards (for example, compliance with Title 24 Building Standards).
- Discuss project siting, orientation and design to reduce energy demand (for example, for heating and cooling).

Transportation and Measures to Promote Efficient Transportation Alternatives

- Total estimated commuting and work-related trips by vehicle type and mode.
- Land use and design measures intended to reduce reliance on single occupancy commute vehicles (for example, smart growth elements such as higher residential density to support public transportation, improving the walking and biking environment, employee trip reduction program and/or vanpool, etc.).

Water, Wastewater and Solid Waste

- Estimate water consumption, and wastewater and solid waste production.
- Water conservation (use of reclaimed or grey water, low-flow appliances, landscaping).
- Solid waste reduction (recycling, composting)

3.1.3 Compliance with District Permits, Rules and Regulations

The District enforces various rules and regulations to maintain air quality (see Appendix A). Air quality emission controls that are otherwise required by District rules or some other regulation should be considered part of the baseline. In regards to development projects, District permitting authority is primarily focused on stationary sources. A stationary source consists of an identified emission point, such as a stack at a facility. Multiple emission point sources may be located on-site such that the facility as a whole is considered a stationary source. Major stationary sources are usually associated with industrial processes such as manufacturing or refining. Minor stationary sources include fuel combustion in diesel generators, boilers, heaters, and cement and asphalt batch plants. Non-combustion stationary sources include facilities that produce reactive organic gases (ROG) and/or volatile organic compounds (VOC) such as gas stations, dry cleaning services and coating operations.

Compliance with District rules and regulations should be included in the project description and cannot be used as mitigation for a project's impacts to air quality. Rules that may be applicable to development projects are listed in Appendix A. All District rules and regulations may be accessed at www.bcaqmd.org.

3.1.4 Best Practices to Minimize Impacts to Air Quality

Best management practices consist of feasible measures and actions to minimize air pollutant emissions during both the construction and operational phases of a project. They include a range of standard construction and operational practices applicable to a variety of circumstances that should be incorporated into the project description and included as project commitments or conditions of approval. For construction, they include standard practices to control fugitive dust, limit engine emissions, and provide for citizen complaints. For operation, they include site design measures and energy efficient appliances to reduce energy demand for heating, cooling and lighting. For stationary sources, they include Best Available Control Technology (BACT). Examples of best management practices, which may apply to one or more pollutant, are provided in Appendix C.

3.2 Environmental and Regulatory Setting

The CEQA Guidelines Section 15125(a) (Environmental Setting) states:

> "An EIR[1] must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. The description of the environmental setting shall be no longer than is necessary to an understanding of the significant effects of the proposed project and its alternatives."

Section 15125(c) continues:

> "Knowledge of the regional setting is critical to the assessment of environmental impacts…The EIR must demonstrate that the significant environmental impacts of the proposed project were adequately investigated and discussed and it must permit the significant effects of the project to be considered in the full environmental context."

The baseline environmental setting represents the existing conditions at a given time to be used as the point of comparison for determining the significance of a proposed project's potential environmental effects. The "time" for which baseline conditions are evaluated is normally when a notice of preparation is published or, if no notice of preparation is published (when an initial study is prepared, for example), when the environmental review commences.

The baseline may be better represented by trends over a given period determined appropriate by the lead agency. For example, air quality or greenhouse gas emissions may vary over a period of years such that emissions for a single year may not provide an accurate measure of the pre-project baseline. In other instances, the near-completion of significant road infrastructure or unusual, temporary circumstances such as forest fires or construction detours may skew the baseline assessment of existing conditions. In such instances, the lead agency is encouraged to consult with the District to determine the appropriate period of time represented by the baseline.[2]

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[1] Note that pursuant to the CEQA Guidelines Section 15063(d), initial studies must also include "identification of the environmental setting" of a project.

[2] Under such circumstances, the baseline period may be different for different environmental impact analyses.

Annual District air quality reports can be found at the following web site:

http://www.bcaqmd.org/page/monitoring-air-quality.php

A variety of District and regional air quality data, including trends over time for criteria air pollutants and projections, may be obtained at the following California Air Resources Board web site:

http://www.arb.ca.gov/html/ds.htm.

The baseline setting should also include a discussion and map of sensitive receptors within the vicinity of the project. The distance evaluated may vary depending upon the air pollutant, meteorology, topography and other factors; in general, the District recommends evaluation of sensitive receptors within 1,000 feet of the project parcel(s) for toxic air contaminants (including diesel PM and naturally occurring asbestos) and up to one mile for criteria air pollutants and odors.

Although there is no strict definition of what constitutes an adequate baseline discussion, it must provide a point of comparison for determining the significance of a project's impacts. The District recommends that the baseline description include a discussion of the physical and regulatory setting as provided in Sections 3.2.1 and 3.2.2 below.

3.2.1 Physical Setting

The CEQA document should include qualitative and, where relevant data is available, quantitative descriptions of the following environmental baseline characteristics as they pertain to air quality and greenhouse gases:

- Sacramento Valley Air Basin;
- Land use as it may influence the physical setting, including general plan and zoning designations, and past, present and foreseeable future projects in the vicinity of the project under consideration as indicators of other potential sources of air pollutants;
- Proximity of sensitive receptors;
- Landcover (presence of hardscape, roads, vegetation, bare or disturbed soil, etc.) as they may influence existing air quality and be altered with implementation of the project;
- Climate, topography and wind patterns as they may influence seasonal changes in air quality and issues with fugitive dust;
- Ambient air quality, attainment status and trends as points of comparison with anticipated emissions from the project;
- Butte County greenhouse gas baseline inventory (expressed in carbon dioxide equivalents) and future projections, by source; and
- Existing energy supplies for the project and energy use patterns in the region and locality.

Additional information regarding these physical setting characteristics may be found in Appendix B.

3.2.2 Regulatory Setting

Lead agencies should include a brief discussion of the air quality laws and regulations that are applicable to the project. Section III (Air Quality) of the Appendix G Environmental Checklist directs the lead agency to determine if the project would: (a) "conflict with or obstruct implementation of the applicable air quality plan" and (c) "result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under and

applicable federal or state ambient air quality standard…" In order to respond to these questions and place the project within its regulatory context, the environmental document should briefly discuss the following as they may be applicable to the potential air quality and greenhouse gas emission impacts of the project:

- Federal and State Clean Air Acts
- California Air Resources Board
- State Implementation Plan (SIP) and Northern Sacramento Valley Attainment Plan (however, see discussion in Section 2.5.1)
- Butte County Air Quality Management District
- Climate change and applicable climate action plan (if any)
- General Plan policies applicable to air quality and climate change

(Note that pursuant to California Public Resources Code Section 21151.8(a)(2), any new school or proposed industrial or commercial project site to be located within one quarter of a mile of a use that might reasonably be anticipated to emit hazardous emissions or handle hazardous or extremely hazardous substances or waste must be referred to the District for review. Pursuant to California Health and Safety Code Section 42301.6, the air pollution control officer is required to issue a public notice prior to making a final decision on a permit application for any new or modified source of hazardous air emissions located within 1,000 feet of the outer boundary.)

The regulatory setting applicable to air quality in Butte County is provided in Appendix A. Information is also available at the District's web site (www.bcaqmd.org) and the California Air Resource Board's web site (http://www.arb.ca.gov/).

4 EVALUATION OF CRITERIA AIR POLLUTANTS

This Section provides the District's recommendations on how criteria air pollutants should be evaluated in the environmental document, including:

1. Criteria air pollutants subject to analysis;
2. Use of Table 4-1 Screening Criteria;
3. Quantification and impact determination with CalEEMOD; and
4. Mitigation.

4.1 Criteria Air Pollutants Subject to Review

Criteria air pollutants are those air pollutants or precursors to air pollutants that are subject to the National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS). The seven NAAQS criteria air pollutants are:

1. Carbon monoxide (CO);
2. Lead (Pb);
3. Nitrogen dioxide (N_2O);
4. Ozone (O_3);
5. Respirable particulate matter less than 10 microns in diameter (PM_{10});
6. Fine particulate matter less than 2.5 microns in diameter ($PM_{2.5}$); and
7. Sulfur dioxide (SO_2).

In addition to these seven Federal criteria air pollutants, the California Air Resources Board has established California Ambient Air Quality Standards for the following four:

1. Sulfates;
2. Hydrogen sulfide;
3. Vinyl chloride (chloroethene); and
4. Visibility reducing particles.

Permissible levels of criteria air pollutants are set according to human health and/or environmentally-based standards. Limits established to protect human health are termed primary standards; limits established to prevent environmental and property damage are termed secondary standards. The regulatory context for criteria air pollutants is further discussed in Appendix A.

4.2 Analytic Approach

Evaluation of criteria air pollutants consists of five steps:

1. Compare project type and size with Table 4-1 Screening Criteria;
2. If project type and size do not meet Table 4-1 Screening Criteria, construction and operational project emissions must be quantified using a modelling software such as CalEEMod;
3. Compare quantified, unmitigated emissions with Table ES-2 Thresholds of Significance (see page 5);
4. If unmitigated emissions exceed the Table ES-2 Thresholds of Significance, apply mitigation measures; and
5. Recalculate mitigated emissions and compare with Table ES-2 Thresholds of Significance.

Applicants should be sure to include all applicable best practices to reduce emissions of criteria air pollutants in the project description. Best practices – many of which reduce more than one pollutant – are provided in Appendix C.

When using CalEEMod to estimate emissions, the District recommends that, at a minimum, the seven federal criteria air pollutants be evaluated. Evaluation of reactive organic gases (ROGs) and toxic air contaminants (TACs) will capture the potential effects of volatile organic compounds (VOCs), which are hydrocarbon compounds emitted into the air from gasoline, alcohol, architectural coatings (paints and stains), asphalt, and a wide variety of other substances. VOCs may be toxic, contribute to the formation of smog, and are a primary precursor to ozone formation.

4.3 Screening for Criteria Air Pollutants

Table 4-1 provides the District's screening criteria to determine whether or not modeling for criteria air pollutants is necessary. The screening criteria were created using CalEEMod version 2013.2.2 for the given land use types, with default Butte County urban settings (see Table 4-2 limitations discussed below) and relate to both the size of the project facility (units or square feet) and the surface area that will be disturbed to support the facility. Using the default settings, the quantity of criteria pollutant emissions is proportional to the size of the project. To determine whether or not a proposed project meets the screening criteria, the size and metric for the land use type (units or thousands of square feet) should be compared with that of the proposed project.

Table 4-1. Screening Criteria for Criteria Air Pollutants

Land Use Type	Model Emissions for Projects Greater Than
Single Family Unit Residential	30 units
Multi-Family (Low Rise) Residential	75 units
Commercial	15,000 square feet
Educational	24,000 square feet
Industrial	59,000 square feet
Recreational	5,500 square feet
Retail	11,000 square feet

1. Screening levels were created using CalEEMod 2013.2.2, based on daily ozone precursor emissions with default Butte County urban settings modeled for winter emissions (which are typically higher than summer emissions).

2. CalEEMod provides numerous land use sub-types for each of the land use types provided in the left column. Please consult the CalEEMod User Guide for more information regarding specific land use sub-types.

3. Screening criteria assume no woodburning devices, unpaved roads, parking or mixed land uses.

4. Emissions from engines and industrial sources subject District Rules and Regulations are not included in the screening estimates.

If the screening criteria are met by a proposed project, then further quantification of criteria air pollutants is not necessary and a less-than-significant impact for criteria air pollutants may be assumed. If a project exceeds the size provided by the screening criteria for a given land use type then modeling and quantification of criteria air pollutants should be performed as described in Section 4.4.

The screening criteria identified in Table 4-1 represent project sizes by land use where a significant impact to air quality *may* occur (that is, a Table ES-2 criteria air pollutant threshold *may* be exceeded) such that additional evaluation and modeling is warranted. They are not thresholds of significance or comprehensive, and should be used for general guidance only.

Lead agencies should carefully consider how a proposed project relates to the land use categories and sizes provided in Table 4-1 as not all projects will offer a simple match. The land use types represent new development on greenfield sites in urban areas without mitigation measures. The size criteria for the different land use categories are based upon default assumptions made by CalEEMod regarding the scope of numerous activities and characteristics associated with the construction and operational phases: demolition, grading, cut and fill, vegetation removal and landscaping, material import/export, equipment, vehicle miles travelled, energy demand and production, and many others. The screening criteria do not account for project design features, attributes, or local development requirements that could result in lower emissions. For example, projects that mix land uses, involve infill development or are proximate to transit and local services, would have less emissions than the greenfield projects these screening criteria are based upon.

A determination that a proposed project will not have a significant impact with regard to criteria air pollutants (and that further modeling and quantification is unnecessary) should be based upon an assessment of the whole of the project. If there is substantial evidence that the criteria air pollutant emissions are cumulatively considerable, notwithstanding compliance with the screening levels in this table, a refined emissions quantification and analysis should be conducted. If modeling of criteria air pollutants is determined to be unnecessary because the project meets the screening criteria, the initial study should still identify the main sources of construction and operational emissions with sufficient discussion to support the conclusion that they will have a less than significant impact on air quality.

In relying on Table 4-1 to not model emissions, lead agencies should insure that all applicable best management practices are incorporated into construction and operation of the project and identified in the project description. As noted in the Executive Summary, Table 4-1 should not be used and modeling and quantification should be performed if a project involves any of the following:

- Significant material transport involving a considerable amount of hauling (e.g., greater than 10,000 cubic yards);
- Grading in contaminated soils or in areas with suspected or known naturally-occurring asbestos (see Section 7.2);
- Simultaneous construction of more than one land use type (not applicable to high density infill development);
- Only a construction phase; that is, the project has no operational land use component, (for example, a road construction or levee project); or
- Preparation of an environmental impact report.

When relying upon screening criteria, lead agencies should also take care to evaluate the potential presence of sensitive receptors. Stationary-source emissions are not included in the screening estimates in Table 4-1; again, however, a project's stationary source emissions that must be permitted by the District should be discussed in the environmental document but analyzed separately from the land use-related indirect mobile- and area-source emissions.

Finally, any conclusions made in regards to impacts via screening criteria should be based on substantial evidence as that term is defined in CEQA Guidelines Section 15384. The

environmental document should provide a succinct and reasoned discussion concerning the applicability of screening criteria in reaching a determination regarding impact significance.

4.4 Impact Analysis and Determining Significance

If a project does not meet the screening criteria provided in Table 4-1, then emissions of nonattainment pollutants (ROG, NOx, PM) and, if appropriate given the project, other criteria or toxic air pollutants, should be modeled and quantified to determine whether or not a significant impact will occur pursuant to the thresholds of significance presented in Table ES-2.

4.4.1 Modeling Air Quality Emissions

There are several approaches available to modeling air pollutants; applicants and lead agencies are encouraged to consult with the District regarding the most suitable model. The basic steps are provided in Table 4-2.

Table 4-2. Sample Criteria Air Pollutant and Precursor Emissions Analysis

Step	Evaluate	Construction			Operation		
		ROG	NOx	PM	ROG	NOx	PM
1	Area Sources	A	A	A	A	A	A
	Mobile Sources	B	B	B	B	B	B
	Total Unmitigated Emissions	A+B=C	A+B=C	A+B=C	A+B=C	A+B=C	A+B=C
2	BCAQMD Threshold	Max 137 lbs/day not to exceed annual 4.5 tons/year	Max 137 lbs/day not to exceed annual 4.5 tons/year	80 lbs/day	25 lbs/day	25 lbs/day	80 lbs/day
3	Unmitigated Emissions Exceed BCAQMD Threshold?	Are unmitigated emissions C > Threshold? If yes, the impact is significant - go to Step 4. If no, the impact is less than significant and mitigation is not required.					
4	Emissions Mitigated to Maximum Extent Feasible	D	D	D	D	D	D
5	Mitigated Emissions Exceed BCAQMD Threshold?	Are mitigated emissions D > Threshold? If no, the impact is less than significant with mitigation incorporated. If yes, the impact is significant and unavoidable.					

Note: Letters "A" and "B" represent numeric values that would be obtained through modeling for sources of construction and operational emissions. "C" represents the sum of unmitigated emissions "A" and "B"; "D" represents mitigated emissions.

For most development projects, the District recommends using the latest version of CalEEMod to estimate criteria air pollutants (and, as discussed in Section 6, greenhouse gases). CalEEMod, developed and maintained by the California Air Pollution Control Officers Association (CAPCOA), is widely used and provides a consistent approach to estimating air pollutant emissions resulting from construction and operation. It calculates emissions for a variety of project types, including ROG, NO_x, fugitive dust and exhaust PM, GHGs, and other air pollutants.

Accurate modeling and quantification of criteria air pollutants depends upon correctly evaluating their relevant source(s) and emission rates. CalEEMod provides emission factors for both the

construction and operational phases of a project combined with appropriate default data that can be used if site-specific information is not available. (Each source has a default value based upon surveys conducted by the South Coast Air Quality Management District.) Although applicants can simply use the default settings provided by the software, the District recommends using project-specific data to achieve the most accurate estimate possible. General guidance in the use of CalEEMod is provided in the following sections. More specific guidance is available at the CalEEMod web site: www.caleemod.com.

Other freely available emissions analysis aids include EMFAC (developed by the California Air Resources Board) and the EPA document AP-42 "Compilation of Air Pollutant Emission Factors." For linear construction projects, such as pipeline, road or levee work, the Sacramento Metropolitan Air Quality Management District's Roadway Construction Emissions Model provides a spreadsheet approach to quantifying emissions. Information is available at: http://airquality.org/ceqa/.

4.4.2 Construction Emissions

The CalEEMod construction module consists of construction phases and various emission sources that could occur (depending upon the project) during one or more of those phases. The construction phases consist of demolition, site preparation, grading, building construction, paving, and architectural coatings. The emission sources evaluated by CalEEMod (on separate tabs) are off-road equipment, dust from material movement, demolition, trips and vehicle miles travelled (VMT), on-road fugitive dust and architectural coatings. Each of these emission sources, in turn, provides additional options to characterize the source.

As noted, CalEEMod includes default assumptions for a variety of construction-related activities associated with a particular land development project, such as:

- Construction phase duration;
- Daily disturbed acreage;
- Fugitive dust emission rate;
- Asphalt paving (if applicable);
- Construction worker trips;
- Equipment fleet for each phase;
- Construction vendor trips; and
- Architectural coating emissions

Table 4-3 provides the metrics by which CalEEMod measures construction emission sources. Applicants should make every attempt to provide project-specific values for as many of the applicable metrics as possible in order to accurately estimate construction emissions. Users may enter their own data or use the default settings based upon the project type, size and location but, regardless of whether user or default data is used, the environmental document should discuss the basis for the analysis and its conclusions. A project construction emissions source not provided by CalEEMod as a default setting can and should be entered on the construction tab and evaluated as part of a project's potential impacts to air quality.

Table 4-3. Construction Source Emissions and Metrics Evaluated by CalEEMod*

Source	Metric					
Off-Road Equipment	Equipment type and number	Equipment horsepower	Equipment load factor			
Dust from Material Movement	Material imported, exported	Volume, weight	Mean vehicle speed	Total acres disturbed	Material moisture content	Silt content
Demolition	volume	weight				
Trips and VMT	Worker, vender, hauling trips/day	Trip lengths	Class of vehicle			
On-Road Fugitive Dust	Percentage paved road	Road silt (g/m2)	Material silt content (%)	Material Mositure content (%)	Average vehicle weight (tons)	Vehicle speed (mph)
Architectural Coatings	residential interior and exterior VOC (g/L)	Residential interior and exterior area (sf)	Non-residential interior and exterior VOC (g/L)	Non-residential interior and exterior area (sf)		

* Evaluated as applicable during demolition, site preparation, grading, building construction, paving and architectural coating phases.

4.4.3 Operational Emissions

CalEEMod evaluates operational emissions associated with mobile (VMT, emissions by fleet mix, road dust), area (hearths, consumer products, area architectural coatings, landscape equipment), energy use associated with heating, cooling, lighting, appliance, water use and wastewater, and solid waste disposal components of a project once it is in use. The direct, indirect and cumulative air quality impacts that result from operational activities of a project should be fully evaluated and quantified as part of the CEQA review process for projects that do not meet the screening criteria. Table 4-4 summarizes the various operational emissions metrics by source.

CalEEMod also provides a module evaluating vegetation removed and planted (one-time loss and provision of carbon sequestration, respectively) using acreage and number of trees as the default metrics.

Similar to estimating construction emissions, applicants and lead agencies should obtain as much information as possible regarding operation of the project to improve the accuracy of the estimate. For example, motor vehicles are a primary source of long-term emissions from residential, commercial, institutional, and industrial land uses. These land use projects may not emit significant amounts of vehicular air pollutants directly, but are likely to attract motor vehicle trips (for example, employees and vendors) that do produce emissions. Such induced vehicle trips are examples of indirect sources.

Non-Vehicular Emissions from Residential and Commercial Facilities (Area Sources)

Non-vehicular emissions sources associated with most residential and commercial development include: energy used to power lights, appliances, heating and cooling equipment; evaporative emissions from paints and solvents; fuel combustion by lawnmowers, leaf blowers and other small utility equipment; residential wood burning; household products; and other small sources.

Table 4-4. Operational Source Emissions and Metrics Evaluated by CalEEMod

Source	Metric				
Mobile	Vehicle trips	Vehicle emissions	Road dust		
Area	Hearths	Consumer products	Area architectural coatings	Landscape equipment	
Energy Use	Title-24 electricity energy intensity (kWhr/size/yr)	Non-title-24 electricity energy intensity (kWhr/size/yr)	Lighting energy intensity (kWhr/size/yr)	Title-24 natural gas energy intensity (KBTU/size/yr)	Non-title 24 natural gas energy intensity (KBTU/size/yr)
Water and Wastewater	Indoor/outdoor water use (gals/year)	Electricity intensity factor to supply, treat and distribute (kWhr/Mgal)	Electricity intensity factor for wastewater treatment (kWhr/Mgal)	Septic, aerobic, facultative lagoons (%)	Anaerobic digestion with combustion or cogeneration of gas (%)
Solid Waste	Solid waste generation rate (tons/yr)	Landfill no gas capture (%)	Landfill capture gas flare ($)	Landfill capture gas energy recovery (%)	

Collectively, these are referred to as "area sources" and are important from a cumulative perspective even though they may appear insignificant when viewed individually. CalEEMod provides default emissions estimations from area sources based on land use types.

Industrial Emission Sources

Industrial facilities and operations are typically categorized as being "point" or "area" sources for emissions. Point sources are stationary and generally refer to a site that has one or more emission sources at a facility with an identified location (e.g., power plants, refinery, boilers). In contrast, area sources include:

- Stationary or mobile sources with categories of stationary facilities whose emissions may be small individually but significant as a group (e.g., gas stations, dry cleaners, etc.) within a given area;
- Sources whose emissions emanate from a broad area (e.g., fugitive dust from storage piles and dirt roads, landfills, surface mines, etc.); and
- Mobile equipment used in industrial operations (e.g., drill rigs, loaders, haul-trucks, etc.).

Emissions from new, modified or relocated point sources are directly regulated by the District through the New Source Review program (Rule 430) and facility permitting program (see Appendix C). New development that includes these source types should be forwarded to the District for a determination of District permitting and control requirements.

Certain other stationary and mobile area sources are also subject to District permitting (for example, various equipment at surface mining operations and fugitive dust from stockpiles). However, area sources of combustion emissions from mobile equipment at a facility (for example, loaders, haul trucks, compressors, portable generators, etc.) are generally not subject to direct permitting by the District and their impact analysis and mitigation must occur through the CEQA review process. For input into CalEEMod, the appropriate emission factors and calculation

methods for such sources are contained in the federal Environmental Protection Agency publication, Compilation of Air Pollutant Emission Factors, AP-42 (latest edition available at http://www.epa.gov/ttnchie1/ap42/)

One CalEEMod default area source value which could have a significant impact on project emissions is "hearth fuel combustion." While the Table 4.1 residential screening criteria do not include hearths or fireplaces, this setting requires attention if a project does include wood-burning devices.

Estimates submitted during the environmental review process should include supporting documents and files with project calculations (in Excel format) to allow the District to verify quantification of the emissions.

4.4.4 Determining Significance

The threshold criteria for criteria pollutants established by the District to determine the significance and appropriate mitigation level for a project are presented in Table ES-2 in the Executive Summary. The thresholds are based upon District Rule 430 *State New Source Review (SNSR)* which incorporates stationary source permitting significance thresholds required by the California Health and Safety Code Section 40918. Emissions which equal or exceed the designated threshold levels are considered potentially significant and should be mitigated to the maximum extent feasible. For **construction activities**, any project generating more than 137 lbs/day or 4.5 tons/year of ROG or NOx, or 80 lbs/day of particulate matter, should make every feasible attempt to mitigate below those thresholds. For **operational activities**, any project generating more than 25 lbs/day of ROG or NOx, or 80 lbs/day of particulate matter for should similarly make every feasible attempt to mitigate below those thresholds.

4.5 Mitigation

As discussed, emissions may occur during both the construction and operational phases of a project with direct, indirect and/or cumulative effects upon ambient air quality. In order to reduce a potentially significant impact to less than significant, mitigation measures must be implemented that reduce emissions of NOx, ROG and PM to levels below the thresholds in Table ES-2[3]. Mitigation of construction emissions includes using a low-emission fuel such as natural gas or bio-diesel and the most effective engine technology for reducing emissions. Control of fugitive dust beyond standard best practices such as using soil stabilizers or replacing disturbed ground cover may also be employed. For operational emissions, applicants should first seek to mitigate to a less than significant level with on-site measures. If these measures are inadequate, then off-site measures should be proposed and implemented (see Appendix C). The District will review all mitigation measures to evaluate their efficacy and insure their successful application.

Table 4-5 provides general mitigation strategies that may, with sufficient detail, be evaluated in CalEEMod. In order to achieve the most accurate reductions estimate possible, the applicant should provide project-specific inputs for each mitigation measure.

In practical terms, the on-site mitigation measures address fugitive dust, diesel particulate matter and exhaust, trip reduction in construction and operational vehicle miles travelled, efficient energy and water use, methods to reduce wastewater and solid waste, and off-site measures.

[3] If a lead agency wishes to approve a project with a significant impact, it must adopt a statement of overriding considerations explaining its decision.

Table 4-5. CalEEMod Mitigation Strategies for Construction and Operation-Related Impacts

Source	Mitigation Measure			
Off-Road Construction Equipment	Change fuel (diesel, bio-diesel, CNG	Change engine tier (Tiers 1 - 4)	Install diesel particulate filter (Levels 1 -3)	Use oxidation catalyst (% reduction)
Dust Reduction (PM10, PM2.5)	Soil stabilizer for unpaved roads	Replace ground cover of area distrubed	Water exposed area, clean paved road	Traffic and dust control on unpaved roads
Traffic - Land Use and Site Enhancement	Increase dwelling unit density, land use diversity, improve walkability, destination and transit access	Improve pedestrian network, traffic calming, implement NEV network	Limit parking supply, unbundle parking costs, on-street market pricing	Provide BRT system, expand transit network, increase transit frequency
Traffic - Commute	Implement trip reduction program, provide transit subsidy, workplace parking measures	Implement school bus program, encourage telecommuting, alternative work schedules	Provide market commute trip reduction option, employee vanpoo/shuttle, ride sharing program	
Area	No hearth/natural gas only hearth, low VOC paint, electric yard tools	Low VOC cleaning supplies	Landfill capture gas flare ($)	Landfill capture gas energy recovery (%)
Energy Demand	Exceed Title 24 standards	Install high efficiency lighting	On-site renewable energy	Energy efficient appliances
Water Use	Apply water conservation strategy, use reclaimed/grey water	Install low-flow faucets, shower, toilet	Reduce turf, use water efficient irrigation	Water efficient landscaping
Solid Waste	Institute recycling and composting services			

A variety of standard on- and off-site mitigation measures for minimizing construction and operational emissions of criteria air pollutants are provided in Appendix C. The efficacy of the mitigation measures must be verified and the District recommends that CalEEMod be used to quantify the emissions reductions anticipated with implementation. Mitigation applicable to the construction, traffic, area, energy, water and solid waste options for reducing air quality and greenhouse gas emission impacts are also provided in the CalEEMod User Guide (available at http://www.caleemod.com).

5 EVALUATION OF TOXIC AIR CONTAMINANTS (TACs)

This Section provides the District's recommendations on how toxic air contaminants should be evaluated in the environmental document, including:

1. An inventory and discussion in the project description regarding potential sources of TACs;
2. Screening methods to determine if further quantification is necessary;
3. Methods to model and quantify TACs;
4. Guidance on significance thresholds; and
5. Approaches to mitigation.

A general approach for determining impacts resulting from TACs is provided in Chart 5-1.

5.1 Toxic Air Contaminants Subject to Review

TACs, also referred to as toxic or hazardous air pollutants, are a defined set of airborne pollutants that may pose a present or potential hazard to human health. TACs come from a variety of sources, ranging in scale and complexity from household products to industrial plants, and can be emitted directly or formed in the atmosphere via reactions between different pollutants. They are identified, assessed for potential risk to humans, and regulated as determined necessary under the US EPA's National Air Toxics Assessments (http://www.epa.gov/nata/) and/or CARB's California Air Toxics (http://www.arb.ca.gov/toxics/toxics.htm) programs with the goal of eliminating, avoiding or otherwise minimizing the risks of adverse health effects to humans from exposure. As of this writing, there are some 200 TACs on the California Air Toxics Program's list which may be accessed at: http://www.arb.ca.gov/toxics/id/taclist.htm.

TACs are not classified as criteria air pollutants (CAPs) and – except as noted immediately below – are not included in the California Ambient Air Quality Standards. Fine particulate matter or $PM_{2.5}$ is a criteria air pollutant, and certain fine particulates such as diesel PM and components of smoke are also classified as TACs and generally agreed to be some of the most harmful air pollutants in relation to their impact on human health.

5.2 Health Risk Assessments

The health effects of TACs vary considerably and may be assessed by means of a health risk assessment, which in simple terms is a measure of the chance that humans will experience health problems due to exposure. A health risk assessment combines known health effects to animals and humans resulting from exposure with estimates of the level of exposure to humans at different distances from the source of the TAC. For regulatory purposes, TACs are divided into carcinogens and non-carcinogens, depending upon the physiological effects associated with exposure. For carcinogens, there is no safe threshold assumed below which health impacts would not occur and risk is expressed as excess cancer cases per one million exposed individuals (usually over a lifetime of exposure).

Non-carcinogenic substances differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur; that safe level of exposure varies with the TAC. For projects that do not meet screening criteria referenced in Section 5.4 below, a health risk assessment must be done in order to evaluate the level of exposure. Acute and chronic exposure to non-carcinogens are expressed separately as a hazard index (HI) representing the ratio of expected exposure levels to acceptable reference exposure levels.

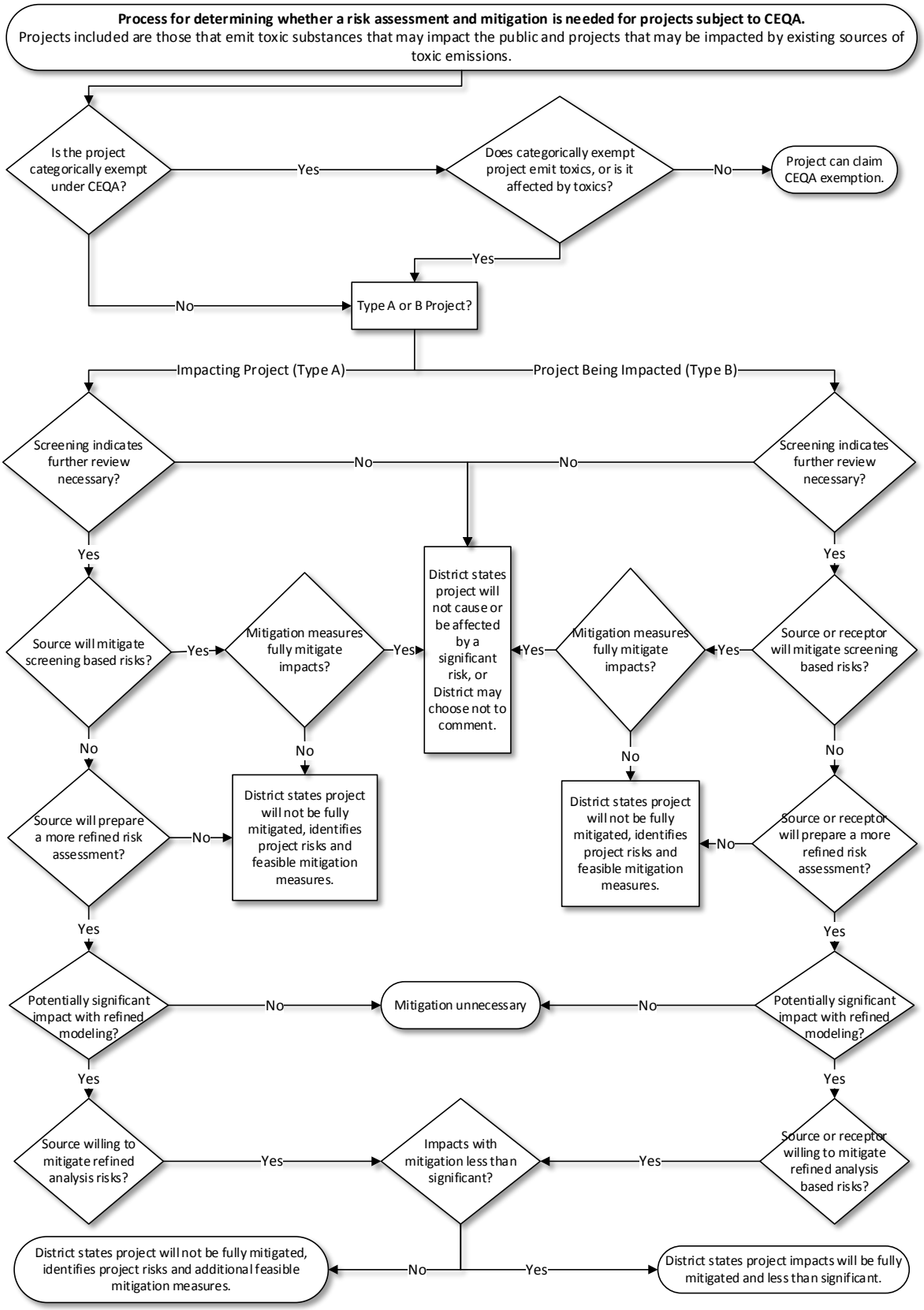

Chart 5-1. CEQA Evaluation Process for Toxic Air Contaminants

The health effects of TACs are evaluated by the California Office of Environmental Health Hazard Assessment (OEHHA). Cancer potencies and reference exposure levels (RELs) for individual air contaminants established by the Air Toxics Hot Spots Program (Health and Safety Code Section 44360(b)(2)) reflect their potentially different effects upon the health of infants, children and other sensitive populations.

The US EPA (1991) identifies the following four steps in a health risk assessment:

1. Hazard Identification – what health problems are caused by the TAC?
2. Exposure Assessment – how much of the pollutant do people inhale during a specific time period and how many people are exposed?
3. Dose-Response Assessment – what are the health problems at different exposures?
4. Risk Characterization – what is the extra risk of health problems in the exposed populations?

The principal factor used to determine health risk focuses on the dose(s) to which receptors are exposed to one or more TACs according to their concentration and persistence in the environment. Dose and health risk thus increase with the concentration and duration of exposure to the TAC, which in turn are affected by various physical conditions affecting its dispersion through the atmosphere such as weather conditions and topography. The age and sensitivity of the receptor also interact with the dose; children, the infirm and the elderly are generally more susceptible to the health effects of a TAC.

In general, a project's site-specific characteristics and surrounding conditions are used to evaluate its potential cancer risk, hazard, and $PM_{2.5}$ concentrations. The environmental document should provide an inventory of all TACs that may occur with construction and operation of the project itself and identify significant sources and receptors within a 1,000 foot radius around the project parcels for the cumulative analysis. Applicants and lead agencies may find the *California Almanac of Emissions and Air Quality*, published by CARB, useful for its discussion of trends of various TAC emissions in California. The Almanac may be accessed at:

http://www.arb.ca.gov/aqd/almanac/almanac.htm

While many TACs are associated with specific industrial processes, a pervasive TAC common in many land development projects is fine particulate matter ($PM_{2.5}$) emitted from diesel powered equipment. Both short and long-term exposure to diesel $PM_{2.5}$ is known to be particularly harmful to human health due to its effects on the respiratory and cardiovascular systems.

5.3 Analytic Approach by Project

5.3.1 Type A and B Projects

In evaluating TACs, the 2009 CAPCOA *Health Risk Assessments for Proposed Land Use Projects* identifies **Type A** and **B** land use projects with the potential to cause long-term public health risk impacts. **Type A** land use projects involve new facilities or facility activities that emit TACs with a potential to impact receptors, such as

- Freeways and high traffic volume roads;
- Goods distribution centers;
- Rail yards;
- Refineries;
- Chrome platers;
- Autobody shops;
- Gasoline dispensing facilities;

- Fossil fuel power plants;
- Asphalt batch plants;
- Quarry operations; and
- Other stationary sources that emit toxic substances.

Type A projects generally involve stationary sources of air pollutants (and are therefore subject to permitting by the District), but they may also involve mobile sources, such as road traffic, delivery vehicles, or diesel-powered locomotives, and be further distinguished as point or area sources. A point source is a single, identifiable source of air emissions such as a stack or collection of isolated vents. With area sources, air pollutant emissions are dispersed across a certain land use, such as a landfill, construction site or wastewater lagoon. Regardless of the nature of the source, and pursuant to Government Code Section 65850.2 and Health and Safety Code Sections 42301.6 to 42301.9, projects with the potential to emit dust, soot, odors, fumes, vapors, or other volatile compounds that are within 1,000 feet of the outer boundary of a school or school site must be forwarded to the District for review.

For Type A projects, the lead agency should evaluate:

- The extent to which the new source would increase risk levels, hazard index, and/or $PM_{2.5}$ concentrations at nearby receptors;
- Whether or not the source should be permitted by the District (as a stationary source); and
- Whether the project should implement Best Available Control Technology for Toxics (T-BACT), as determined by the District.

Type B land use projects are residential, commercial and institutional developments that will place receptors in the vicinity of an existing TAC source; for example, a residential subdivision within a certain distance of a freeway interchange or a rendering plant. If a project will provide a place for people to live, recreate, learn or convalesce, it should be considered a receptor in the context of an existing TAC source.

The project description should consider those segments of the population most vulnerable to poor air quality, including children, the elderly and those with pre-existing health problems affected by air quality (CARB 2005). Receptors include residences (i.e., houses, apartments, mobile home parks, and senior living complexes), schools and school yards, parks and play grounds, daycare centers, nursing homes, and medical facilities (i.e., hospitals, convalescent homes, and health clinics).

5.3.2 District Permitted and Non-Permitted Sources

Stationary sources of potential TAC emissions, such as gas stations or back-up diesel generators, are subject to District permit requirements. For discretionary projects with sources that must be permitted by the District, the project type, size, location and planned level of use are the bases for estimating TAC emissions. As discussed in Sections 5.4 and 5.5 below, screening and, if necessary, modeling should be used to determine cancer and non-cancer risk for existing and reasonably foreseeable future receptors within 1,000 feet of the project boundary. Depending upon the source and risk, the District may make recommendations for Best Available Control Technology specific to the TAC source (otherwise known by the acronym T-BACT). Note that stationary sources emitting TACs are subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPs) and Air Toxic Control Measures (ATCMs) promulgated by the EPA and CARB, respectively. More information regarding federal and state standards may be found at:

http://www.epa.gov/compliance/monitoring/programs/caa/neshaps.html

and

http://www.arb.ca.gov/toxics/atcm/atcm.htm

New stationary sources of TACs would not receive authority to construct or a permit to operate if it would result in:

- An incremental increase in cancer risk greater than ten (10) in one million at any offsite receptor; and/or
- An off-site ground-level concentration of non-carcinogenic TACs generated from the project that would result in a Hazard Index greater than one (1) (unless approved by Office of Environmental Health and Hazard Assessment).

For discretionary projects that include sources of TAC and/or $PM_{2.5}$ emissions that are not subject to District permitting, such as a distribution center or manufacturing facility, the project description should include the type, number and use of diesel-powered on-road and off-road equipment and the presence of existing and reasonably foreseeable future receptors within 1,000 feet of the project boundary.

The District recognizes that the operation of a project may include permitted stationary sources and non-permitted sources of TACs. In such cases, lead agencies should evaluate the combined impact of all TAC emissions generated on the project site, in addition to the potential cumulative impacts within the project vicinity. In general, cumulative impacts may be analyzed within a 1,000 foot radius around the project fence line, although a larger or smaller radius may be appropriate in certain circumstances. Applicants and lead agencies may consult the District to determine the locations of existing permitted sources (if any) within a project area.

5.3.3 Best Practices to Minimize TAC Emissions

The breadth of best practices to reduce TAC emissions reflects the variety of TAC sources. Construction best practices include limiting equipment idling, use of diesel particulate filters and other measures to minimize diesel particulate matter. Operational best practices include use of Best Available Control Technology specific to the TAC source (T-BACT). Best practices, which should be referenced in the environmental document as applicable, are provided in Appendix C.

5.3.4 Analytic Expectations

The goal of the impact analysis is for the lead agency to make a determination, based upon substantial evidence, as to whether or not the TAC emissions associated with the construction and operation of the project will have a significant effect upon air quality in general and sensitive receptors in particular. Lead agencies may start with appropriate screening tools as described in Section 5.4 below. If the screening tool(s) indicate an impact may occur, or if the project information does not allow for reasonably accurate use of the screening tool(s), then quantitative modeling and a Health Risk Assessment (HRA) should be performed as described in Section 5.5.

The *Health Risk Assessments for Proposed Land Use Projects* provides the following phased approach for the CEQA review process when either a Type A or Type B project is proposed:

1. Determine if the project is categorically exempt from CEQA;
2. Determine if the project is impacting, or being impacted (Type A or B);
3. Identify sources, receptors and impact area (project radius);

4. Using screening methods, calculate acute, chronic, and cancer risk;
5. If the screening analysis indicates significant health risk as defined by the lead agency, demonstrate that risks will be mitigated with all feasible measures even though a refined risk assessment may show that less mitigation is needed; or
6. Conduct a refined screening (health) risk assessment; and,
7. If the risk continues to be deemed significant by the lead agency even with the refined assessment, demonstrate that the risks will be adequately mitigated with feasible measures.

This process is summarized by the flow chart in Chart 5-1. Some projects that would otherwise be categorically exempt from CEQA (see Section 1.3.1 above) may emit toxic emissions or may be impacted by existing toxic sources. Such projects may require a Health Risk Assessment (HRA) and thus be an exception to a categorical exemption pursuant to CEQA Guidelines Section 15300.2). Table 5-1 shows exceptions from categorical exemptions where an HRA evaluation may be needed and a negative declaration or EIR should be prepared.

Table 5-1. Categorical Exemptions That May Require HRA Evaluation

Categorical Exemption	Exempt Activity with *Possible Impact*
15301. Existing Facilities	This exemption also allows use of a single-family residence as a day care facility without CEQA review. *However, such uses near existing TAC emissions may warrant further review.*
15302. Replacement or Reconstruction	This exemption allows the replacement or construction of existing schools and hospitals in certain cases without CEQA review. *However, locating new facilities near existing TAC emissions may warrant further review*
15303. New Construction or Conversion of Small Structures	This exemption class allows small new construction projects to proceed without CEQA review. *However, projects claiming this exemption should be reviewed for possible TAC impacts from ongoing nearby sources.*
15314. Minor Additions to Schools	This exemption class allows small school addition projects to proceed without CEQA review. *However, projects claiming this exemption should be reviewed for possible TAC impacts from ongoing nearby sources.*
15316. Transfer of Ownership of Land in Order to Create Parks	Exemptions in this class should be reviewed for *possible impacts from locating near ongoing sources of TAC.*
15332. In-Fill Development Projects.	This exemption class allows certain in-fill development projects to proceed without CEQA review. *However, projects claiming this exemption should be reviewed for possible TAC impacts from ongoing nearby sources such as high volume roadways and freeways.*

Source: Table 1, *Health Risk Assessments for Proposed Land Use Projects*. CAPCOA 2009.

As with criteria air pollutants and greenhouse gas emissions, applicants should provide as much project-specific information as possible in order to accurately disclose all potential TAC emissions. Construction activity can result in emissions of diesel PM while airborne asbestos can occur with demolition or soil disturbance in areas with naturally-occurring asbestos (see Section 7-2 and "Special Conditions" in Appendix C). The environmental document should include the following information:

- The type of construction activities, their timing, and the TAC emissions associated with those activities, and a significance determination without mitigation;
- Permitted and non-permitted operational sources of TAC emissions;
- Receptors in the vicinity of TAC emission sources;
- A quantitative health risk assessment (HRA) disclosing health risk levels to affected receptors if qualitative screening tools are not sufficient in determining impact, and a significance determination without mitigation; and
- Feasible mitigation measures as necessary to reduce TAC exposure from construction and operation, with an assessment as to whether the reductions reduce impact(s) to a less-than-significant level.

The District has not established numeric screening levels (aside from the buffers discussed in Section 5.4 below) or thresholds of significance for TACs. In reviewing an environmental document, the District will determine if hazards and risks to the community from a project are fully described, evaluate the method(s) of assessment, assumptions and resulting conclusions, and whether or not mitigation measures (if any) are sufficient to mitigate significant impacts.

5.4 Screening

Although the District does not have screening criteria for TACs, lead agencies may use established screening approaches to decide if further quantification through modeling is necessary to determine impact significance. Thorough discussions and examples regarding screening tools and methods may be found in the following two documents:

1. *Health Risk Assessments for Proposed Land Use Project* (CAPCOA 2009), accessed at http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA_HRA_LU_Guidelines_8-6-09.pdf; and
2. *Recommended Methods for Screening and Modeling Local Risks and Hazards* (Bay Area Air Quality Management District 2011), accessed at http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20Modeling%20Approach.ashx.

Similar to screening for criteria air pollutants, the screening methods for TACs are intended as general guidance to determine whether or not a more refined quantification and health risk assessment are necessary. CARB's *Health Risk Assessments for Proposed Land Use Projects* distinguishes the screening for Type A and B land use projects as follows.

5.4.1 Type A Projects

For Type A projects (new sources that may affect existing or reasonably foreseeable receptors), the source or sources of TACs should be identified. For evaluation of a new source's *project-specific* impact, the location of maximum risk and/or hazard to a receptor should be identified (rather than placing a 1,000 foot radius around the project boundary). For evaluation of a new source's *cumulative* impact, the District recommends evaluating significant TAC sources within a 1,000-foot radius around the project source.

The variety of screening tables and tools reflect the variety of TAC sources. For stationary sources (and in addition to the screening information referenced above), several screening tools such as AERSCREEN are available at the following US EPA web site:

http://www.epa.gov/scram001/dispersion_screening.htm.

AERSCREEN, based on the more robust AERMOD model, produces estimates of "worst-case" TAC concentrations for a single source. Other EPA screening tools may be used for screening multiple point sources and plume dispersion.

For mobile sources such as diesel trucks and heavy equipment, the State of California's EMFAC and OFFROAD emissions inventories, used for screening on- and off-road road vehicles, respectively, may be accessed at:

http://www.arb.ca.gov/msei/categories.htm#onroad_motor_vehicles.

These screening tools require specialized knowledge and experience, and guidance in their use is beyond the scope of this document; however, more information may be obtained by contacting the District or found in the sources noted above.

5.4.2 Type B Projects

For Type B projects (those placing receptors in locations that may be affected by existing sources), applicants and lead agencies should again generally assess impacts from sources of TACs within 1,000 feet of the proposed project. Both stationary and mobile sources should be evaluated – mobile sources include traffic on roadways and delivery vehicles associated with a facility. The 1,000 foot radius may be used for evaluating risks and hazards from both individual sources and the cumulative effect of multiple sources. In certain instances (for example, a large industrial facility), a larger radius may be appropriate.

For screening, CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) proposes buffer distances from various sources (Table 5-2). These buffer distances are advisory; if the lead agency determines a buffer distance between source and receptor is adequate and a health risk analysis is unnecessary, the environmental document should provide an explanation based upon substantial evidence that the buffer is adequate to prevent a significant risk to receptors. If significant stationary and/or mobile sources exist within the Table 5-2 buffer distances, additional screening tools may be used to determine whether additional modeling is required. A thorough discussion of these more sophisticated screening tools and methods is provided in the Bay Area Air Quality Management District's guidance document, *Recommended Methods for Screening and Modeling Local Risks and Hazards*, available as noted above.

Table 5.2. Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities

Source	Advisory Recommendations
Freeways and high-traffic roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles per day.
Distribution centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week).
	Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Railyards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard.
	Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Refineries	Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome platers	Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Gasoline dispensing facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

Note: These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.

Source: Table 2, Health Risk Assessments for Proposed Land Use Projects. CAPCOA 2009.

5.5 Impact Analysis and Determining Significance

5.5.1 Modeling Approaches

When screening indicates that a project may result in (Type A projects) or be subject to (Type B projects) significant exposure to one or more TACs, the applicant should conduct and lead agencies evaluate a more refined modeling analysis. As with screening tools, various modeling tools are available to evaluate the wide variety of source and receptor circumstances that may be encountered depending upon the project and its setting. In order to provide a more definitive conclusion regarding hazards and risk, modeling should assess the site-specific air dispersion characteristics of the TACs in question. This in turn requires specific inputs for a number of parameters, including, but not limited to:

- Emission estimates (types of TACs, emission rates, solid/vapor phase state);
- Site parameters (land use, buildings, terrain, source location);
- Meteorological data (wind speed, direction, temperature, mixing height);
- Receptors (location defined by a grid).

Several models requiring varying amounts of data and analysis are available at the following United States Environmental Protection Agency web site:

http://www.epa.gov/scram001/dispersion_screening.htm.

Specific guidance in the use of these models is beyond the scope of this Handbook. However, both *Recommended Methods for Screening and Modeling Local Risks and Hazards* (BAAQMD, 2011) and *Health Risk Assessments for Proposed Land Use Projects* (CAPCOA 2009) provide direction and examples for a variety of modeling circumstances. Applicants and lead agencies are encouraged to consult these documents and the District in regards to the screening and modeling of TACs.

5.5.2 Estimating Health Risk and Hazard

The District has not established thresholds of significance for exposure to TACs. However, for stationary Type A projects (new sources impacting existing receptors), *Health Risk Assessments for Proposed Land Use Projects* states that an excess cancer risk of greater than 10 in a million is considered significant by a majority of air districts in the state (CAPCOA 2009, p. 11). For TACs with acute and chronic non-carcinogenic health effects, CAPCOA states that

> "a hazard index of one must not be exceeded. Depending on the substances being emitted, a project with a hazard index greater than one could result in adverse health effects of various sorts. It should be noted that a hazard index exceeding one may need additional analysis to determine whether the acceptable level of acute or chronic risk could be higher depending upon the safety factors that were incorporated into the reference exposure levels (RELs) associated with the hazard index results."

Note that these thresholds apply to individual permits; under CEQA, the thresholds would apply to permitted and non-permitted sources.

For Type B projects (new receptors affected by existing sources), *Health Risk Assessments for Proposed Land Use Projects* (p. 12) provides the following conceptual significance levels that lead agencies may wish to consider:

- Thresholds can be based on a specific risk level such that a 10 per million excess cancer risk and an acute and chronic hazard index of one should not be exceeded. These thresholds tend to be consistent with the Hot Spot Program thresholds.
- Thresholds can also be based on the region's existing background cancer risk value if one exists.
    - One option is to establish a risk level equal to a region's background risk level.
    - Another option is to establish a risk level equal to twice a region's background risk level.
    - Still another option is to look at the ambient risk in the immediate vicinity of the project area rather than the regional risk level.
- Case by case thresholds may also be defined.

5.6 Mitigation for Impacts Related to Toxic Air Contaminants

Mitigation measures for significant impacts resulting from TACs generally comprise (1) engineered technologies at the source to reduce TAC emissions to a less-than-significant level; and (2) modifying site and project design to maximize distances between sources and recipients. Further discussion of mitigation approaches are provided below. Standard mitigation measures

for diesel PM – many of which offer reductions for more than one air pollutant – are also provided in Appendix C.

5.6.1 Construction Impacts

Diesel PM Exhaust from Construction Equipment

- Fuel all off-road and portable diesel powered equipment with CARB certified motor vehicle diesel fuel (non-taxed version suitable for use off-road);
- Use diesel construction equipment meeting ARB's Tier 2 certified engines or cleaner off-road heavy-duty diesel engines, and comply with the State Off-Road Regulation;
- Use on-road heavy-duty trucks that meet the ARB's 2007 or cleaner certification standard for on-road heavy-duty diesel engines, and comply with the State On-Road Regulation;
- Construction or trucking companies with fleets that do not have engines in their fleet that meet the engine standards identified in the above two measures (e.g. captive or NOx exempt area fleets) may be eligible by proving alternative compliance;
- Electrify equipment when feasible;
- Substitute gasoline-powered in place of diesel-powered equipment, where feasible; and
- Use alternatively fueled construction equipment on site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel.

Best Available Control Technology (BACT) for Construction Equipment

- Further reducing emissions by expanding use of Tier 3 and Tier 4 off-road and 2010 on-road compliant engines;
- Repowering equipment with the cleanest engines available;
- Installing California Verified Diesel Emission Control Strategies. These strategies are listed at: http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm;
- Implementing a design measure to minimize emissions from on and off-road equipment associated with the construction phase. This measure should include but not be limited to the following elements:
    - Tabulation of on and off-road construction equipment (type, age, horse-power, engine model year and miles and/or hours of operation);
    - Calculate daily worst case emissions and the quarterly emissions that include the overlapping segments of construction phases
    - Equipment scheduling (to estimate NOx and PM)
    - Schedule activities to minimize the amount of large construction equipment operating simultaneously during any given time period;
    - Locate staging areas at least 1,000 feet away from sensitive receptors;
    - Where feasible:
        i. Limit the amount of cut and fill to 2,000 cubic yards per day;
        ii. Limit the length of the construction work-day period; and,
        iii. Phase construction activities.

5.6.2 Operational Impacts

Best Available Control Technology for Toxics (T-BACT)

T-BACT, comprising a wide variety of control techniques and technologies to minimize operational TAC emissions at the source, should be implemented when risks exceed a cancer

risk of ten in a million and/or a hazard index of one. Numerous examples of specific T-BACTs may be found in the Bay Area Air Quality Control Management District's *Best Available Control Technology Workbook*.

Facility Design and Land Use

To a certain extent, the long-term air quality impact of a project is a function of its design and the broader land use context. The air quality impacts of a project are often not considered until after a project has been designed when it can be very difficult to make any substantial changes to reduce its air quality impact(s). The layout of streets, the mix of land uses, and the placement of homes and businesses can all influence the effect of overall project emissions. The following land use and facility design measures should be considered when potential impacts from TACs may occur:

- Increase project distance from freeways and/or major roadways;
- Redesign the site layout to locate sensitive receptors as far as possible from any freeways, major roadways, or other non-permitted TAC sources (e.g., loading docks, parking lots);
- For large mixed-use projects, consider phasing development so commercial/retail portions of the project are developed first, allowing time for CARB's diesel regulations to effectively reduce diesel emissions along major highways and arterial roadways. Ultimately lower concentrations would be predicted along the roads reducing diesel PM risks to residential development during the later phases of the project;
- Projects that propose sensitive receptors adjacent to sources of diesel PM (e.g., freeways, major roadways, rail lines, and rail yards) should consider tiered plantings of trees such as redwood, deodar cedar, live oak and oleander to reduce TAC and PM exposure (BAAQMD May, 2012);
- For receptors, install and maintain air filtration systems of fresh air supply either on an individual unit-by-unit basis, with individual air intake and exhaust ducts ventilating each unit separately, or through a centralized building ventilation system. The ventilation system should be certified to achieve a specified effectiveness (for example, to remove at least 80% of ambient $PM_{2.5}$ concentrations from indoor areas). The air intake for these units should be located away from areas producing the air pollution (i.e., away from major roadways and highways);
- Where appropriate, install passive (drop-in) electrostatic filtering systems, especially those with low air velocities (i.e., 1 mph);
- Locate air intakes and design windows to reduce PM exposure (e.g., windows nearest to the freeway do not open);
- Install indoor air quality monitoring units in buildings;
- Require rerouting of nearby heavy-duty truck routes;
- Enforce illegal parking and/or idling of heavy-duty trucks in vicinity.

6 EVALUATION OF GREENHOUSE GASES

6.1 Impacts to Global Climate Change Subject to Review

As discussed in Appendix A, greenhouse gases (GHGs) are natural and anthropogenic gases that absorb and emit radiation within the thermal infrared range, trapping heat in the earth's atmosphere. Naturally occurring greenhouse gases include water vapor (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3). Halogenated compounds that contain fluorine, chlorine, or bromine (generally a product of industrial activities) are also greenhouse gases. Project CO_2 emissions may be distinguished as biogenic (derived from living cells and generated from biological decomposition, combustion and numerous other processes) and non-biogenic (derived from fossil fuels, limestone, and other materials transformed by geologic processes).

Although the direct greenhouse gases CO_2, CH_4, and N_2O occur naturally in the atmosphere, human activities largely associated with the combustion of carbon-based fuels have increased their atmospheric concentrations since the start of the industrial age. The state of California has adopted a number of statutes and regulations to control and reduce the emission of GHGs, reflecting a belief that increasing concentration of GHGs will result in a number of deleterious impacts to public health, safety and the environment through the effects of global climate change (Appendix A).

To the extent they may occur with either the construction or operation of a project, the following six GHGs should be evaluated by applicants and lead agencies and expressed in metric tons (MT) of CO_2e (carbon dioxide equivalents) per year:

- Carbon dioxide (CO_2);
- Nitrous oxide (N_2O);
- Methane (CH_4);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulfur hexafluoride (SF_6).

Individual GHGs are converted to CO_2e by multiplying their values expressed in tons per year by their global warming potential (GWP). The GWP is a ratio of a gas' heat-trapping characteristics relative to CO_2, which has a GWP of 1. Appendix A provides more discussion regarding greenhouse gases.

The District recommends that applicants use the latest version of CalEEMod to estimate construction and operational GHG emissions. Land development projects typically include the following sources of GHG emissions:

- Construction activities resulting in exhaust emissions of GHGs from fuel combustion for mobile heavy-duty diesel- and gasoline-powered equipment, portable auxiliary equipment, material delivery trucks, and worker commuter trips;
- Motor vehicle trips generated by the particular land use (i.e. vehicles arriving and leaving the project site), including those by residents, shoppers, workers, and vendors;

- Onsite fuel combustion for space and water heating, landscape maintenance equipment, and fireplaces/stoves; and
- Offsite emissions at utility providers associated with the project's demand for electricity, water conveyance and wastewater processing.

There are no "attainment" concentration standards established by the Federal or State government for greenhouse gases. GHG influence on global climate change is inherently global in nature, while air pollutants affect the health of people and other living things at ground level, in the regional (criteria air pollutants) or local (toxic air contaminants) area of their release.

The District recommends that CEQA analyses addressing the potential impacts of project-generated GHG emissions include:

- An inventory of the project's construction and operational sources of GHGs and the time periods when emissions are expected, distinguishing District-permitted stationary sources from mobile and other non-permitted sources;
- The current state of the science with respect to GHGs and climate change and the existing regulatory environment;
- The non-project GHG setting representing the baseline for determining the project's impact; and
- Identification of the thresholds of significance applicable to the proposed project. The lead agency may consider thresholds of significance adopted or recommended by other lead agencies, or adopt its own thresholds, provided the decision is supported by substantial evidence. Alternatively the lead agency may consider thresholds based on the goals of Assembly Bill 32 (see Appendix A).

6.2 Screening

The District has not established numeric screening criteria for greenhouse gas emissions such as those provided in Table 4-1 for criteria air pollutants. However, projects that are consistent with an approved GHG Emissions Reduction Plan would have a less than significant impact upon global climate change and, unless modeling indicates otherwise, would not require further analysis. In addition, GHG emissions from cars and light duty trucks would have a less than significant impact for certain "special projects" as discussed in Section 6.2.2 below. Initial studies should provide specific reasons demonstrating why projects meeting these screening criteria do not need quantification of their GHGs.

6.2.1 Projects Complying with an Approved GHG Mitigation Program or Emission Plan

CEQA Guidelines Section 15183.5(a) provides for the tiering and streamlining of GHG emissions analysis:

> "Lead agencies may analyze and mitigate the significant effects of greenhouse gas emissions at a programmatic level, such as in a general plan, a long range development plan, or a separate plan to reduce greenhouse gas emissions. Later project-specific environmental documents may tier from and/or incorporate by reference that existing programmatic review."

Climate Action Plans (CAPs) identify limits and/or targets for reduction of GHGs within a given geographic area, with feasible goals, policies, measures that will achieve that target. Such reduction plans must be specified in law and approved by the lead agency with jurisdiction over the affected resource and supported by an environmental document adopted by the lead agency pursuant to CEQA.

Specific projects that are consistent with the goals, policies and actions of a GHG mitigation program or Climate Action Plan may be determined to have a less-than significant impact with regard to GHG impacts unless modeling indicates otherwise. The environmental document should include a discussion based upon substantial evidence demonstrating the project's consistency with the GHG mitigation program.

CEQA Guidelines Section 15183.5(b) provides guidance on the elements to be included in an emissions reduction or climate action plan.

1) "Plan Elements. A plan for the reduction of greenhouse gas emissions should:

   (A) Quantify greenhouse gas emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;

   (B) Establish a level, based on substantial evidence, below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable;

   (C) Identify and analyze the greenhouse gas emissions resulting from specific actions or categories of actions anticipated within the geographic area;

   (D) Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;

   (E) Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels;

   (F) Be adopted in a public process following environmental review."

Per CEQA Guidelines Section 15183.5(b)(2) emission reduction plans may also be used for cumulative impact analysis of greenhouse gas emissions:

> "Use with Later Activities. A plan for the reduction of greenhouse gas emissions, once adopted following certification of an EIR or adoption of an environmental document, may be used in the cumulative impacts analysis of later projects. An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project. If there is substantial evidence that the effects of a particular project may be cumulatively considerable, notwithstanding the project's compliance with the specified requirements in the plan for the reduction of greenhouse gas emissions, an EIR must be prepared for the project. Lead agencies should include an evaluation of how the project complies with these provisions in the environmental document."

Again, a project must demonstrate its consistency with the emissions reduction plan by identifying and implementing all of its applicable feasible measures and policies.

The City of Chico and Butte County have adopted Climate Action Plans. Once adopted, projects within these jurisdictions should make every effort to be consistent with its Climate Action Plan.

6.2.2 Special Situation Projects

The CEQA Guidelines Section 15183.5(c) identifies special situations when global warming impacts resulting from cars and light duty trucks do not need to be analyzed:

> "Special Situations. As provided in Public Resources Code sections 21155.2 and 21159.28, environmental documents for certain residential and mixed use projects, and transit priority projects, as defined in section 21155, that are consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in an applicable sustainable communities strategy or alternative planning strategy need not analyze global warming impacts resulting from cars and light duty trucks. A lead agency should consider whether such projects may result in greenhouse gas emissions resulting from other sources, however, consistent with these Guidelines."

If a determination is made to not analyze greenhouse gas emissions associated with cars and light duty trucks, lead agencies should demonstrate how the project complies with the sustainable communities and transit priority project provisions of Public Resources Code Section 21155. Note that GHG emissions from sources other than cars and light trucks still need to be evaluated.

6.3 Impact Analysis and Determining Significance

If the project does not meet the screening criteria provided in Section 6.2 (that is, it is not consistent with a Climate Action Plan or applicable General Plan greenhouse gas reduction goals and policies, then the following information should be included:

- A quantification of the finite mass emissions of GHGs that will be generated by construction and operation of the project, with the input parameters and assumptions used to estimate these values;
- A discussion of whether the quantified GHG emissions will result in a cumulatively considerable contribution to global climate change; and
- A discussion of feasible construction and operational mitigation measures necessary to reduce impacts to a less-than-significant and cumulatively considerable level.

All direct and indirect GHG emissions from a project's construction and operation should be identified and estimated. Direct emissions include emissions produced from construction machinery, onsite combustion of energy (such as natural gas used in furnaces and boilers), emissions from industrial processes, and fuel combustion from other mobile sources. Indirect emissions include emissions produced offsite from energy production and the provision of water and wastewater services for the project. Again, CalEEMod may be used to estimate both construction and operational GHG emissions and the environmental document should tabulate each separately.

The GHG emissions from permitted stationary sources should also be calculated separately from a project's operational emissions. For example, if a proposed project anticipates having a permitted stationary source on site, such as a back-up generator, the GHG emissions from the generator should not be added to the project's total emissions, but calculated separately as part of the District's permitting process for stationary sources. Applicants and lead agencies should

consult the District as to which stationary sources are subject to the District's own permitting process.

Modeling files should be sent to the District in their native (not pdf) format. Results should be presented in summary tables for unmitigated and mitigated construction and operational emissions, with total amounts of biogenic and non-biogenic CO_2, CH_4, N_20 and other anthropogenic GHGs expressed in pounds per day and summed as CO_2 equivalents (CO_2e).

The District has not determined a threshold of significance for GHGs. In determining the significance of impacts from GHG emissions, the CEQA Guidelines Section 15064.4(a) directs that GHG emissions be either (1) quantified or (2) described using a qualitative analysis or performance-based standards. The GHG emissions of all projects that do not meet the screening criteria provided in Section 6.2 be quantified using the latest version of CalEEMod. Projects requiring an EIR should also have their GHG emissions quantified. Applicants and lead agencies relying on other modeling approaches, performance-based standards, or a qualitative analysis should consult the District.

CEQA Guidelines Section 15064.4(b) states that a "lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emission on the environment:

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

6.4 Mitigation for Impacts Related to Greenhouse Gases

CEQA Guidelines Section 15126.4(c) provides the following guidance in regards to GHG mitigation measures:

"(c) Mitigation Measures Related to Greenhouse Gas Emissions.

Consistent with section 15126.4(a), lead agencies shall consider feasible means of mitigating greenhouse gas emissions that may include, but not be limited to:

(1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;

(2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures, such as those described in Appendix F;

(3) Off-site measures, including offsets, to mitigate a project's emissions;

(4) Measures that sequester greenhouse gases; and

> (5) In the case of the adoption of a plan, such as a general plan, long range development plan, or greenhouse gas reduction plan, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions."

For those projects with a significant impact upon global climate change that cannot tier from a previously approved, community-wide GHG Reduction or Climate Action Plan, the applicant must develop project-specific mitigation measures to reduce GHG emissions generated during both the construction and the operational phases of the project.

A lead agency is not responsible for eliminating all GHG emissions from a project but to mitigate impacts to a level that is "less than significant" and "less than cumulatively considerable." The District recommends that lead agencies clearly explain why each GHG mitigation measure is feasible, the amount of reduction it achieves, and who will be responsible for its implementation and monitoring. GHG emission reduction measures that relate directly or indirectly to policies in the local jurisdiction's Climate Action Plan or General Plan should be discussed in the environmental document.

If, after the identification of all feasible mitigation measures, a project is still deemed to have a cumulatively considerable contribution to global climate change, then the lead agency must, if it wishes to approve the project, 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.

A number of standard mitigation measures – many of which reduce emissions of GHGs and other pollutants – are provided in Appendix C. Guidance for mitigation measures specific to construction and operational impacts is provided below.

6.4.1 Mitigation Measures for Construction-Related GHGs

The following mitigation measures can be quantified in CalEEMod and, if adequately applied, could reduce construction-related impacts to GHG emissions to a less-than-significant level. (Note that these mitigation measures would also serve to reduce impacts resulting from construction-related criteria air pollutants).

1. Improve fuel efficiency from construction equipment:
    - Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than three minutes (a five minute limit is required by the State Airborne Toxics Control Measure [Title 13, sections 2449(d)(3) and 2485 of the California Code of Regulations]) and provide clear signage posting this requirement for workers at the entrances to the site;
    - Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated;
    - Train equipment operators in proper use of equipment;
    - Use the proper size of equipment for the job; and
    - Use equipment with new technologies (repowered engines, electric drive trains).

2. Perform on-site material hauling with trucks equipped with on-road engines (if determined to be less emissive than the off-road engines).
3. Use alternative fuels for generators at construction sites such as propane or solar, or use electrical power.
4. Use an ARB approved low carbon fuel for construction equipment. (NOx emissions from the use of low carbon fuel must be reviewed and increases mitigated.)
5. Encourage and provide carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.
6. Reduce electricity use in the construction office by using compact fluorescent bulbs, powering off computers every day, and replacing heating and cooling units with more efficient ones.
7. Recycle or salvage non-hazardous construction and demolition debris (goal of at least 75% by weight).
8. Use locally sourced or recycled materials for construction materials (goal of at least 20% based on costs for building materials, and based on volume for roadway, parking lot, sidewalk and curb materials). Wood products utilized should be certified through a sustainable forestry program.
9. Minimize the amount of concrete for paved surfaces or utilize a low carbon concrete option.
10. Produce concrete on-site if determined to be less emissive than transporting ready mix.
11. Use SmartWay (see http://www.epa.gov/smartway/) certified trucks for deliveries and equipment transport.
12. Develop a plan to efficiently use water for adequate dust control.

6.4.2 Mitigation Measures for Operational-Related GHGs

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures* (August, 2010) includes extensive guidance regarding approaches to GHG mitigation and hundreds of documented mitigation measures with emission reductions. Tables 6-1 and 6-2 are derived from *Quantifying Greenhouse Gas Mitigation Measures* and organize operational mitigation measures according to a number of transportation, energy, water, landscaping, solid waste, vegetation, construction, general plan and miscellaneous strategies designed to reduce GHG emissions. Applicants and lead agencies are encouraged to consult *Quantifying Greenhouse Gas Mitigation Measures* to determine which specific measures are most feasible and effective for the project.

6.4.3 Off-Site Mitigation Measures for Operational-Related GHGs

The District is exploring establishing an offsite mitigation program to assist lead agencies and project applicants in achieving emission reductions. A project applicant would enter into an agreement with the District, pay into a District fund, and the District would commit to reducing the type and amount of emission identified in the agreement. The District or a responsible proxy would identify, implement, and manage offsite mitigation projects.

Table 6-1. CAPCOA GHG Mitigation Non-Transportation Strategies Organization

Energy			Water Supply		Area Landscaping	Solid Waste	Vegetation	Construction	Miscellaneous	General Plans
Be	AE	LE	WSW	WUW	A	SW	V	C	Misc	GP
Building Energy	Alternative Energy	Lighting	Water Supply	Water Use	Landscaping Equipment	Solid Waste	Vegetation	Construction	Miscellaneous	General Plans
Exceed Title 24	Onsite Renewable Energy	Install High Efficacy Lighting	Adopt a Water Conservation Strategy		Prohibit Gas Powered Landscape Equipment	Institute or Extend Recycling & Composting Services	Plant Urban Trees	Use Alternative Fuels for Construction Equipment	Establish Carbon Sequestration	Fund Incentives for Energy Efficiency
Install Energy Efficient Appliances	Utilize Combined Heat & Power	Limit Outdoor Lighting	Use Reclaimed Water	Install Low-Flow Fixtures	Implement Lawnmower Exchange Program Reduction: Grouped	Recycle Demolished Construction Material	New Vegetated Open Space	Use Electric or Hybrid Construction Equipment	Establish Off-Site Mitigation	Establish a Local Farmer's Market
Install Programmable Thermostats Reduction: Grouped	Establish Methane Recovery	Replace Traffic Lights with LED Reduction: Additional	Use Graywater	Design Water-Efficient Landscapes	Electric Yard Equipment Compatibility Reduction: Grouped			Limit Construction Equipment Idling	Implement an Innovative Strategy	Establish Community Gardens
Obtain 3rd Party Commissioning Reduction: Grouped			Use Locally Sourced Water	Use Water-Efficient Irrigation				Institute a Heavy-Duty Off-Road Vehicle Plan	Use Local and Sustainable Building materials	Plant Urban Shade Trees
				Reduce Turf				Implement a Construction Vehicle Inventory Tracking System	Require BMP in Agricultural and Animal Operations	Implement Strategies to Reduce Urban Heat-Island Effect
									Require Environmentally Responsible Purchasing	

Source: CAPCOA 2010, Chart 6-1, p.54

Table 6-2. CAPCOA GHG Mitigation Transportation Strategies Organization

Transportation Measures (Five Subcategories) Global Maximum Reduction (all VMT): urban = 75%; compact infill = 40%; suburban center or suburban with NEV = 20%; suburban = 15%					Global Cap for Road Pricing needs further study	
Transportation Measures (Four Categories) Cross-Category Max Reduction (all VMT): urban = 70%; compact infill = 35%; suburban center or suburban with NEV = 15%; suburban = 10%				Max Reduction = 15% overall; work VMT = 25%; school VMT = 65%	Max Reduction = 25% (all VMT)	
LAND USE / LOCATION	NEIGHBORHOOD / SITE ENHANCEMENT	PARKING POLICY / PRICING	TRANSIT SYSTEM IMPROVEMENTS	COMMUTE TRIP REDUCTION	ROAD PRICING MANAGEMENT	VEHICLES
Max Reduction: urban = 65%; compact infill = 30% suburban center = 10% suburban = 5%	Max Reduction: without NEV = 5% with NEV = 15%	Max Reduction = 20%	Max Reduction = 10%	(assumes mixed use) Max Reduction = 25% (work VMT)	Max Eeduction = 25%	
Density (30%)	Pedestrian Network (2%)	Parking Supply Limits (12.5%)	Network Expansion (8.2%)	CTR Program Required = 21% work VMT Voluntary = 6.2% work VMT	Cordon Pricing (22%)	Electrify Loading Docks
Design (21.3%)	Traffic Calming (1%)	Unbundled Parking Costs (13%)	Service Frequency / Speed (2.5%)	Transit Fare Subsidy (20% work VMT)	Traffic Flow Improvements (45% CO2)	Utilize alternative Fueled Vehicles
Location Efficiency (65%)	NEV Network (14.4%) <NEV Parking>	On-Street Market Pricing (5.5%)	Bus Rapid Transit (3.2%)	Employee Parking Cash-out (7.7% work VMT)	Required contributions by Project	Utilize Electric or Hybrid Vehicles
Destination Accessibility (20%)	Car Share Program (0.7%)	Residential Area Parking Permits	Access Improvements	Workplace Parking Pricing (19.7% work VMT)		
Transit Accessibility (25%)	Bicycle Network <Lanes, Parking, Land Dedication for Trails>		Station Bike Parking	Alternative Work Schedules & Telecommute (5.5% work VMT)		
BMR Housing (1.2%)	Urban Non-Motorized Zones		Local Shuttles	CTR Marketing (5.5% work VMT)		
Orientation toward Non-Auto Corridor			Park & Ride Lots*	Employer-Sponsored Vanpool/Shuttle (13.4% work VMT)		
Proximity to Bike Path				Ride Share Program (15% work VMT)		
				Bike Share Program		
				End of Trip Facilities		
				Preferential Parking Permit		
				School Pool (15.8% VMT)		
				School Bus (6.3% school VMT)		

Source: CAPCOA 2010, Chart 6-2, p.55

7 OTHER AIR QUALITY IMPACTS SUBJECT TO CEQA

This section includes information regarding air quality impacts associated with odors and naturally occurring asbestos, including approaches to assessment and mitigation.

7.1 Odors

7.1.1 Basic Information for the Environmental Document

Offensive or strong odors may come from a wide variety of temporary and more or less permanent sources: exhaust from heavy equipment, garbage dumpsters, restaurants, animal boarding facilities, feed lots and general agricultural operations, food processing, compost/green waste and wastewater treatment facilities, rendering plants, various industrial processes, landfills, painting/coating operations and others.

Pollutants associated with odors such as sulfur compounds and methane can be a nuisance to healthy people and they can trigger asthmatic conditions in people with sensitive airways. Given the somewhat subjective nature of human response to odors, the District does not provide quantitative or formulaic methods to evaluate the presence of an impact. Any project with the potential to repeatedly or frequently expose the public to objectionable odors should be considered in the CEQA review under the CEQA Guidelines Appendix G Air Quality Section III(e) (see Section 2.6.1 of this Handbook), including sources, recipients and environmental conditions as they pertain to the significance of the odor impact (if any).

Although offensive odors rarely result in health impacts to humans, they can lead to public distress and complaints to local governments and the District. In screening for odors, project applicants and lead agencies should first identify potential sources. If nuisance odors may occur, possible recipients should be identified. The vicinity map that identifies residences and land uses within 1,000 feet of the project parcel(s) may be used for this task. Potential odor impacts to residential areas and other sensitive receptors such as hospitals, day-care centers, schools and convalescent facilities should be noted, along with other land uses where people may congregate.

7.1.2 Screening

Although reactions to odors vary and are somewhat subjective, lead agencies must still determine if a project's odor(s) represent a significant impact to the surrounding area. While most odors are highly dispersive, the significance of an odor impact is generally related to its intensity with distance from the source. Table 7.1 presents the District's screening distances for various odors sources. If a project is proposed within the screening distance indicated in Table 7-1, the District should be contacted for information regarding potential odor problems. For projects that involve new receptors located near an existing odor source, an information request should be submitted to the District to review the inventory of odor complaints for the nearest odor emitting facility or facilities during the previous three years. For projects involving new receptors to be located near an existing odor source where there is currently no nearby development, and for new odor sources locating near existing receptors, the information request and analysis should be based on a review of odor complaints for similar facilities. Lead agencies must use their discretion in determining how or whether Table 7-1 correlates with a given project.

Table 7.1. Screening Levels for Potential Odor Sources	
Type of Facility	**Screening Distance (miles)**
Wastewater Treatment Plant	2
Wastewater Pumping Facilities	1
Sanitary Landfill	1
Transfer Station	1
Composting Facility	2
Petroeum Refinery	2
Asphalt Batch Plant	2
Chemical Manufacturing	1
Fiberglass Manufacturing	1
Painting/Coating Operations	1
Rendering Plant	4
Coffee Roaster	1
Food Processing Facility	1
Feed Lot/Dairy	1
Green Waste and Recycling Operations	2
Metal Smelting Plants	1
Note: Odor screening distances should not be used as absolute thresholds of significance for an odor significance determination.	
Source: Sacramento Metropolitan Air Quality Management District, 2013, p. 88	

7.1.3 Impact Analysis and Determining Significance

If a proposed project would result in potentially objectionable odors, and if it is located closer than the screening level distances provided in Table 7-1, then a more detailed analysis should be provided, evaluating the proximity between source and receptor(s), the nature of the odor, and the local meteorology, including the predominant wind direction and frequency of temperature inversions. For projects that locate new receptors near an existing odor source, any complaint history should be provided. Lead agencies may need to contact residents or institutions such as schools or hospitals near a source to gain an understanding of adverse experiences.

Significance determinations should be made on a case-by-case basis in light of any relevant information about the source and the setting. The lead agency may need to consider more than one parameter; for example, the proximity between source and receptors, intervening vegetation, predominant wind patterns and complaint history (if any). The lead agency should clearly present the reasoning used to support its significance determination.

7.1.4 Mitigation

All feasible mitigation measures to reduce a significant impact resulting from objectionable odor(s) should be implemented to reduce that impact to less than significant. As there are no formulaic measures to reduce odor impacts, lead agencies should develop measures on a project-specific basis. The District notes that planning based on zoning that adequately separate odor sources from recipients are the most effective measures. Short of a rezoning, it may be possible to locate the source downwind of recipients or recipients upwind of sources. Typically, however, projects are proposed for an existing land use setting where anticipatory planning-based measures are not possible. To the extent site and facility design allows, odor sources should be located as far from recipients as possible. Engineered technologies that control odors

may be required for the emitting source. A number of odor control technologies specific to the source are available; the Sacramento Metropolitan Air Quality Control District provides a list of odor control technologies at the following site:

http://www.airquality.org/ceqa/cequguideupdate/Ch7OdorReductionMeasuresFINAL.pdf

For proposed projects with a significant odor, it may be necessary to limit the odor source during certain meteorological conditions, such as a temperature inversion or prevailing wind in the direction of recipients.

7.2 Naturally and Non-Naturally Occurring Asbestos

7.2.1 Basic Information for the Environmental Document

Naturally occurring asbestos (NOA) has been identified by the CARB as a toxic air contaminant. Serpentine and ultramafic rocks, which may contain NOA, are found in certain mountainous areas of Butte County. NOA can take the form of long, thin separable fibers; there is no health threat if asbestos fibers in the soil remain undisturbed and do not become airborne. However, natural weathering or human disturbance can break NOA down into microscopic fibers that are easily suspended in the air. When airborne, fibers may be inhaled, irritate tissues and resist the body's natural defenses. Asbestos can cause cancers of the lung and the lining of internal organs, as well as asbestosis and other diseases that inhibit lung function.

The District has identified areas in Butte County where NOA may be present (see “ultramafic rock units” identified in Figure 2 at the end of Section 7.2). Applicants for projects that will involve ground-disturbing activities in areas where NOA may be present should conduct a geologic evaluation and comply with the mitigation measures in Section 7.2.4 if NOA is found to be present. The environmental document should provide a regional map showing the project’s proximity to serpentine rock and indicate the potential for naturally-occurring asbestos (NOA).

Asbestos fibers may also be present in structures that are being demolished to make way for a project. In such instances, the environmental document should provide adequate description of the asbestos material and the measures taken to insure its safe removal.

7.2.2 Screening

The District does not provide any numeric screening criteria for NOA. Project applicants and lead agencies should consult the map of known serpentine rock formations shown in Figure 2 located in front of the Appendices. If a project is within 1,000 feet of ultramafic rock units identified in Figure 2, the applicant and lead agency are encouraged to consult with the District prior to commencing environmental review in regards to whether a site-specific analysis is necessary to assess the potential for a project to release NOA into the atmosphere. Projects one acre or less are presumed to result in insignificant impacts with regard to NOA if the measures in Section 7.2.4 are incorporated into the project description and made project commitments.

7.2.3 Impact Analysis and Determining Significance

If a project involves ground-disturbing activities at a site with NOA, a potentially significant impact may occur and the applicant must comply with all requirements outlined in the Asbestos Airborne Toxic Control Measures for Construction, Grading, Quarrying and Surface Mining Operations (17 California Code of Regulations Section 93106) as specified in Section 7.2.4 immediately below.

7.2.4 Mitigation

For project sites with NOA of one (1) acre or less the following provisions shall apply:

No person shall engage in any construction or grading operation on property where the area to be disturbed is one (1) acre or less unless all of the following dust mitigation measures are initiated at the start and maintained throughout the duration of the construction or grading activity:

1. Construction vehicle speed at the work site must be limited to fifteen (15) miles per hour or less;
2. Prior to any ground disturbance, sufficient water must be applied to the area to be disturbed to prevent visible emissions from crossing the property line;
3. Areas to be graded or excavated must be kept adequately wetted to prevent visible emission from crossing the property line;
4. Storage piles must be kept adequately wetted, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile;
5. Equipment must be washed down before moving from the property onto a paved public road; and
6. Visible track-out on the paved public road must be cleaned using wet sweeping or a HEPA filter equipped vacuum device within twenty-four (24) hours.

For project sites with NOA greater than one (1) acre the following provisions shall apply:

No person shall engage in any construction or grading operation on property where the area to be disturbed is greater than one (1.0) acre unless an Asbestos Dust Mitigation Plan for the operation has been:

a. Submitted to and approved by the local air district before the start of any construction or grading activity; and
b. The provisions of that dust mitigation plan are implemented at the beginning and maintained throughout the duration of the construction or grading activity.

An Asbestos Dust Mitigation Plan must specify dust mitigation practices, which are sufficient to ensure that no equipment or operation emits dust that is visible crossing the property line. See Section 93105 (e)(4) for specific provisions and requirements of an Asbestos Dust Mitigation Plan.

Additional information is available at the following District web site:

http://www.bcaqmd.org/page/naturally-occuring-asbestos-noa.php

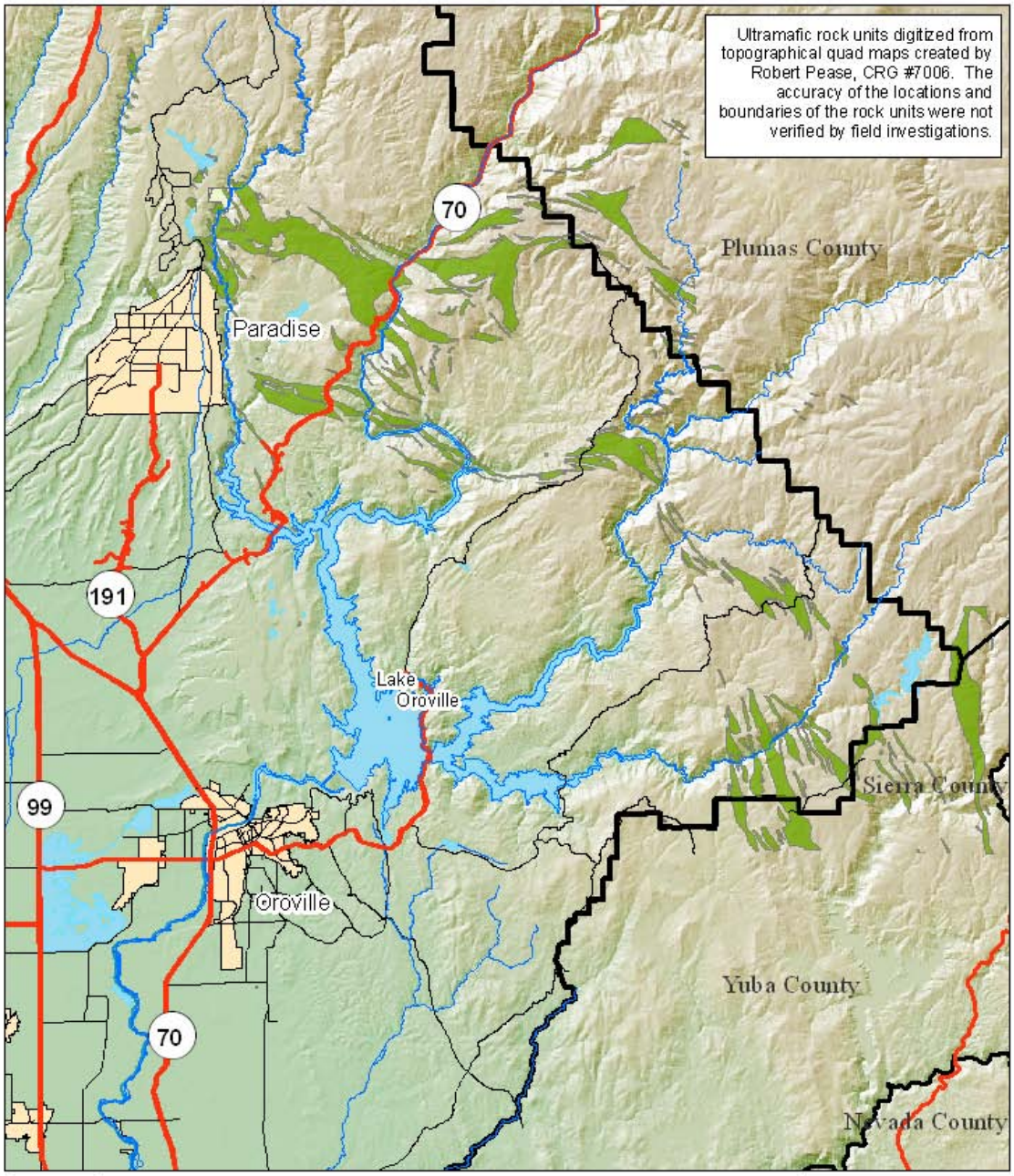

Figure 2

Potential Locations of Naturally Occurring Asbestos

Ultramafic Rock Units

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Greenhouse Gases and Climate Change

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APPENDIX A

Regulatory Context

A-1 Federal and State Air Quality Regulation

A-2 Air Pollutants

A-3 Regional and Local Air Quality Regulation, Policies and Rules

A-1 Federal and State Air Quality Regulation

The goal of improving and protecting air quality in the United States is primarily pursued through the Federal Clean Air Act (FCAA) and implemented at the state level through their specific clean air laws and regulations. The principal law regulating air quality in California is the California Clean Air Act (CCAA), which is implemented at the individual air basin level by local air quality districts such as the Butte County Air Quality Management District.

The FCAA establishes statutes for various programs and strategies to improve the nation's air quality, including the National Ambient Air Quality Standards (NAAQS) for criteria air pollutants, hazardous air pollutant standards, state attainment plans, motor vehicle emissions standards, stationary source emissions standards and permits, acid rain control measures, stratospheric ozone protection, and provisions for enforcement.

The NAAQS set forth the maximum permissible levels of certain common pollutants in the ambient air. The EPA designates areas within each State where the level of the pollutant exceeds the NAAQS as nonattainment areas. The states are then responsible with meeting the NAAQS in nonattainment areas within their borders through State Implementation Plans (SIPs). A SIP is the vehicle for identifying which sources must reduce emissions and by how much in order to attain the NAAQS and, in California's case, the stricter California Ambient Air Quality Standards (CAAQS). The state SIP must be submitted to the EPA within three years of each new or revised NAAQS.

Areas that were previously designated nonattainment but have now met the standard – with EPA approval of a suitable air quality plan – are called "maintenance" areas. In nonattainment or maintenance areas, transportation projects must, in particular, conform to the applicable SIP if they will be funded by the Federal Highways Administration, Federal Transit Administration, or any agency that has been delegated project approval by these agencies.

A number of California's air pollution control laws are found in various state codes outside the CCAA and may be accessed at the following web site:

http://www.arb.ca.gov/bluebook/bb12/bb12.htm.

The CAAA (Division 26 of the state Health and Safety Code) is administered by the California Air Resources Board (CARB). The CARB, which is part of the California Environmental Protection Agency, is responsible for improving and protecting the state's air quality through:

- Adoption and enforcement of California ambient air quality standards (CAAQS) for California criteria air pollutants;
- Designation of California air basins as either in attainment or non-attainment with the CAAQS for a given pollutant;
- Preparation of the State Implementation Plan (SIP) as required by the federal Clean Air Act;
- Establishment of programs for controlling toxic air contaminants (TACs);
- Conducting research and monitoring programs;
- Monitoring consumer products to reduce emissions of volatile organic compounds (VOCs); and
- Overseeing regulatory activities of regional and local air districts.

Local air districts such as the Butte County Air Quality Management District are responsible for permitting and enforcing emissions standards for stationary sources, preparing regional and local air quality attainment or maintenance plans, regulating toxic air contaminants, serving as a trustee agency under CEQA, and providing public outreach and education.

A-2 Air Pollutants

This section provides an overview of the regulatory context for criteria air pollutants, toxic air contaminants, and greenhouse gases.

Criteria Air Pollutants

The EPA has set both primary (health) and secondary (welfare) standards for the following six criteria pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, sulfur dioxide, and particulates (PM_{10} and $PM_{2.5}$). California has established state standards for these six pollutants and, in addition, sulfates, hydrogen sulfide, vinyl chloride (chloroethane), and visibility reducing particles. State and federal ambient air quality standards are provided in Table A-1. The criteria pollutants are described below.

Carbon monoxide (CO) is a colorless, odorless and poisonous gas produced by incomplete burning of carbon during fuel combustion. When CO enters the bloodstream, it reduces the delivery of oxygen to the body's organs and tissues. Health threats are most serious for those who suffer from cardiovascular disease, particularly those with angina or peripheral vascular disease. Exposure to elevated CO levels can cause impairment of visual perception, manual dexterity, learning ability and performance of complex tasks.

Lead (Pb) exposure can occur through multiple pathways, including inhalation of air and ingestion of Pb in food, water, soil or dust. Excessive Pb exposure can cause seizures, mental retardation and/or behavioral disorders; low doses of Pb can lead to damage of the central nervous system. Pb may also be a factor in high blood pressure and subsequent heart disease.

Nitrogen dioxide (NO_2) is a brownish, highly reactive gas that is present in all urban atmospheres. NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. Nitrogen oxides are an important precursor both to ozone (O_3) and acid rain, and may affect both terrestrial and aquatic ecosystems. NO_2 is primarily formed in the atmosphere by oxidation of the primary air pollutant nitric oxide (NOx) which, in turn, reacts in the atmosphere with VOCs to produce O_3. The two major emission sources for NOx, which forms when fuel is burned at high temperatures, are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

Ozone (O_3) is a photochemical oxidant and the major component of smog. Although O_3 in the upper atmosphere is essential to life by shielding the earth from harmful ultraviolet radiation from the sun, high concentrations of O_3 at ground level represent a significant health and environmental concern, capable of causing damage to lung tissue and plants. O_3 is formed when precursor emissions of volatile organic compounds (VOC) and oxides of nitrogen (NOx) react in the presence of sunlight and higher temperatures. Peak O_3 levels thus generally occur during warm periods. VOCs are emitted from sources as

diverse as autos, chemical manufacturing, dry cleaners, paint shops and other sources using solvents. NOx results from fuel combustion occurring with transportation and industrial sources.

Health-based State and Federal ambient air quality standards for ozone in Table A-2 identify outdoor pollutant levels considered safe for the public. As of this writing, Butte County does not meet the State or the federal 1-hour and 8-hour standards.

Sulfur dioxide (SO_2) affects breathing and may aggravate existing respiratory and cardiovascular disease in high doses. Sensitive populations include asthmatics, individuals with bronchitis or emphysema, children and the elderly. SO_2 is also a primary contributor to acid deposition, or acid rain, which causes acidification of lakes and streams and can damage trees, crops, historic buildings and statues. In addition, sulfur compounds in the air contribute to visibility impairment in large parts of the country. Ambient SO_2 results largely from stationary sources such as coal and oil combustion, steel mills, refineries, pulp and paper mills and from nonferrous smelters.

Particulate Matter (PM) is fine material, metal, soot, smoke, and dust particles suspended in the air. For health reasons, we are most concerned with inhalable particulate matter less than 10 micrometers in diameter (PM_{10}), and less than 2.5 micrometers in diameter ($PM_{2.5}$). Particles of these sizes can permanently lodge in the deepest and most sensitive areas of the lung, and can aggravate many respiratory illnesses including asthma, bronchitis, and emphysema. Sources of directly emitted particulates in Butte County include soil from farming, construction dust, paved road dust, smoke from residential wood combustion, and exhaust from mobile sources such as cars and trucks. The valley can also be impacted by agricultural and residential burning.

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 north Sacramento Valley results from emissions generated in the valley as well as from emissions and secondary pollutants transported into the Valley. Due to the north Sacramento Valley's meteorology, topography, and the chemical composition of air pollutants in the region, oxides of nitrogen (NOx) are the primary precursors of both ozone and $PM_{2.5}$.

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/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.075 ppm (147 µg/m³)		
Respirable Particulate Matter (PM10)[8]	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter (PM2.5)[8]	24 Hour	—	—	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12.0 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	
Nitrogen Dioxide (NO_2)[9]	1 Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[10]	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[10]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[10]	—	
Lead[11,12]	30 Day Average	1.5 µg/m³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m³		
Visibility Reducing Particles[13]	8 Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[11]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990

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Table A-1. Ambient Air Quality Standards.

The federal 8-hour ozone standard and the State 8-hour ozone standard are based on an 8-hour continuous average of the ozone level**.**

Toxic Air Contaminants

Under the Clean Air Act, toxic air contaminants (TACs) are airborne pollutants that may be expected to result in an increase in mortality or serious illness or which may pose a present or potential hazard to human health. TACs are also referred to as toxic air pollutants or hazardous air pollutants.

Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes, locomotives), area sources (e.g. dry cleaners) and stationary sources (e.g., factories or refineries). Because it is not practical to eliminate all TACs, these compounds are regulated through risk management programs designed to eliminate, avoid, or minimize the risk of adverse health effects from exposure.

The CARB regulates TACs under the California Clean Air Act. Under the Federal Clean Air Act, the EPA regulates air toxic compounds as hazardous air pollutants, subject to various National Emission Standards for Hazardous Air Pollutants (NESHAPs). A chemical becomes a regulated TAC after it is identified by CARB's California Air Toxics Program or the U.S. Environmental Protection Agency's (EPA) National Air Toxics Assessments, analyzed for its potential for human exposure, and evaluated for its health effects on humans.

The CARB currently maintains a list of approximately 200 toxic substances, including those identified by EPA and the California Air Toxics Program's TAC List, which may be accessed at:

http://www.arb.ca.gov/toxics/id/taclist.htm.

All Federal air toxics are incorporated into the California lists by reference. In addition, California regulates a large number other substances not currently on the Federal list. Key California-only air toxics related to large construction and transportation projects include diesel exhaust particulate matter and naturally-occurring asbestos.

Mobile Source Air Toxics (MSAT), emitted from highway vehicles and non-road equipment, are a subset of the 187 air toxics defined by the Clean Air Act. Interim Guidance on Air Toxic Analysis can be viewed at the Federal Highway Administration Agency web site:

http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/aqintguidmem.cfm

TACs include heavy metals, organic chemicals, pesticides, and radionuclides. Gaseous air toxics such as benzene are precursor volatile organic compounds that form ground-level ozone. Some common TACs include benzene (found in gasoline), perchloroethylene (emitted from some dry cleaning facilities); and methylene chloride (used as a solvent and paint stripper). Other examples include dioxin, asbestos, toluene, and metals such as cadmium, mercury, chromium, and lead compounds.

Once emitted, TACs disperse through the atmosphere and, depending upon the TAC, meteorological conditions and other factors, may expose people through various pathways, such as:

- Breathing contaminated air;
- Eating contaminated food products, such as fish from contaminated waters; meat, milk, or eggs from animals that feed on contaminated plants; and fruits and vegetables grown in contaminated soil on which air toxics have been deposited;

- Drinking water contaminated by toxic air pollutants;
- Ingesting contaminated soil. Young children are especially vulnerable because they often ingest soil from their hands or from objects they place in their mouths; and
- Touching (making skin contact with) contaminated soil, dust, or water (for example, during recreational use of contaminated water bodies).

Certain persistent TACs can accumulate in body tissues, leading to various health impacts. Comprehensive information regarding the science and regulation of TACs is available at the following CARB web site:

http://www.arb.ca.gov/toxics/toxics.htm

Greenhouse Gases

Greenhouse gases (GHGs) are natural and anthropogenic gases that absorb and emit radiation within the thermal infrared range, trapping heat in the earth's atmosphere. Naturally occurring greenhouse gases include water vapor (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3). Halogenated compounds that contain fluorine, chlorine, or bromine (generally a product of industrial activities) are also greenhouse gases. Project CO_2 emissions may be distinguished as biogenic (derived from living cells and generated from biological decomposition, combustion and numerous other processes) and non-biogenic (derived from fossil fuels, limestone, and other materials transformed by geologic processes).

Although the direct greenhouse gases CO_2, CH_4, and N_2O occur naturally in the atmosphere, human activities largely associated with the combustion of carbon-based fuels have increased their atmospheric concentrations since the start of the industrial age. The state of California has adopted a number of statutes and regulations to control and reduce the emission of GHGs, reflecting a belief that increasing concentration of GHGs will result in a number of deleterious impacts to public health, safety and the environment through the effects of global climate change (Appendix A).

In 2007 a federal district court ruled in *Massachusetts et al. v. Environmental Protection Agency 549 US 497* that greenhouse gases (GHGs) are a pollutant as defined by the Clean Air Act and may be regulated as such. The EPA has subsequently made various findings and begun several actions to monitor and limit emissions, including new standards for oil refineries, power plants and other large GHG producers.

California is addressing greenhouse gases and the threat of global climate change with the following legislation:

Senate Bill (SB) 527, approved October 11, 2001, requires the California Climate Action Registry to coordinate with the State Energy Resources Conservation and Development Commission to adopt industry-specific GHG reporting metrics. The bill requires separate reporting of direct and indirect emissions by participants in the California Climate Action Registry, and requires the Registry to periodically report the number of participating organizations, the percentage of total State emissions represented by participants, and any GHG reductions achieved by participating organizations. Under SB 527, the responsibilities of the California Climate Action Registry are adjusted to meet State goals to promote voluntary reporting and reduction of GHG emissions. The bill defines the terms "annual emissions results," "baseline," "certification," "emissions," "emissions inventory," "greenhouse gases," "material," and "de minimis emissions" as they pertain to

climate change, the California Climate Action Registry and the California Air Resources Board (CARB).

Assembly Bill (AB) 1493 (Pavley) of 2002 requires CARB to develop and adopt the nation's first GHG emission standards for automobiles, also known as "Pavley I." With AB 1493 the California Legislature declared that global warming is a matter of increasing concern for public health and the environment, citing several risks that California faces from climate change including a reduction in the State's water supply, an increase in air pollution caused by higher temperatures, a loss of agricultural productivity, an increase in wildfires, damage to the coastline from rising sea levels, and economic losses caused by higher food, water, energy, and insurance prices. The bill also states that technological solutions to reduce GHG emissions would stimulate California's economy and provide jobs.

SB 812 requires the California Climate Action Registry to cooperate with the CARB to develop and adopt protocols for reporting and certification of GHG emissions reductions from forestry conservation and conservation-based management projects. SB 812 also requires the registry to develop protocols for reporting and certifying GHG reduction projects of participants.

California Executive Order S-3-05, signed by Governor Arnold Schwarzenegger on June 1, 2005, provides goals to reduce California's GHG emissions to 2000 levels by 2010, 1990 levels by the 2020, and 80% below 1990 levels by the year 2050.

Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006, sets the goal to reduce overall GHG emissions to 1990 levels by 2020 while further directing CARB to create a plan which includes market mechanisms and implements rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Included are GHG reductions of CO_2e emissions by 169 million metric tons (MMT), about 30 percent of the state's projected 2020 emissions level of 596 MMT CO_2e that would occur without the reductions.

Assembly Bill 32 - Climate Change Scoping Plan, adopted by CARB on December 11, 2008, provides the following strategies to achieve the AB 32 reductions:

- Improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2e);
- The Low-Carbon Fuel Standard (15.0 MMT CO_2e);
- Energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO_2e); and
- A renewable portfolio standard for electricity production (21.3 MMT CO_2e).

Executive Order #S-01-07 establishes a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 through a Low Carbon Fuel Standard to be incorporated into a State Alternative Fuels Plan promulgated by CARB in response to AB 32.

Senate Bill 97 required the Governor's Office of Planning and Research (OPR) to develop amendments to the State CEQA Guidelines for addressing greenhouse gas emissions. The Amendments, which became effective on March 18, 2010, provide

guidance regarding the analysis and mitigation of greenhouse gas emissions in draft CEQA documents.

Sen. Bill 375 adds to AB 32 with a broad requirement for regional transportation agencies to develop a Sustainable Communities Strategy (SCS) that will reduce GHG emissions from passenger vehicles. The SCS is one component of an existing Regional Transportation Plan (RTP) that coordinates transportation and land use planning to reduce vehicular travel as part of an overall strategy to meet the AB 32 GHG reduction targets. The SCS must consider the region's housing needs, transportation demands, and protection of resource and farmlands.

In providing guidance to local governments updating their general plans, the Attorney General has stated that community-wide targets should align with an emissions trajectory that reflects California's aggressive near term, interim (1990 levels by 2020), and long-term (80 percent below 1990 levels by 2050) GHG emissions limits set forth in AB 32 and Executive order S-3-05.

CEQA Guidelines

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. These amendments provide guidance for several procedural and analytic issues, including the following:

- Lead agencies must analyze the greenhouse gas emissions of proposed projects and reach a conclusion regarding the significance of those emissions. (CEQA Guidelines § 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. (CEQA Guidelines § 15126.4(c).)
- Lead agencies must analyze potentially significant impacts associated with placing projects in hazardous locations, including locations potentially affected by climate change. (CEQA Guidelines § 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. (CEQA Guidelines § 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 (Appendix F of the CEQA Guidelines.)

For more information, see the Office of Planning and Research CEQA and Climate Change web site: http://opr.ca.gov/s_ceqaandclimatechange.php.

As part of the administrative rulemaking process, the Natural Resources Agency developed a Final Statement of Reasons explaining the legal and factual bases, intent, and purpose of the CEQA Guidelines amendments. Other rulemaking documents can be accessed on the Natural Resources Agency's rulemaking website (http://ceres.ca.gov/ceqa/guidelines/). The amendments to the CEQA Guidelines implementing SB 97 became effective on March 18, 2010.

A-3 Regional and Local Air Quality Regulation and Policies

Sacramento Valley Air Basin

The CARB has delineated the jurisdiction of regional air basins and local air districts throughout the state. The Sacramento Valley Air Basin consists of nine air districts divided into southern and northern sections defined by the amount of air pollutant transport from one section to the other and the pollutant levels in each. Butte County belongs to the Northern Sacramento Valley Air Basin (NSVAB), comprised by Butte, Colusa, Glenn, Shasta, Sutter, Tehama and Yuba Counties.

Air pollutants are not confined by jurisdictional boundaries as they disperse through the atmosphere. For example, depending upon the time of year and meteorological conditions, a significant share of Butte County's air pollutants may come from the Sacramento metropolitan area which, in turn, may receive a share of its air pollutants from the San Francisco Bay Area or the San Joaquin Valley.

As specified in the California Clean Air Act of 1988, Chapters 1568 – 1588, it is the responsibility of each District within the State to attain and maintain California's ambient air quality standards, specifically for all criteria pollutants for which a District is in nonattainment. The CCAA requires that an attainment plan be developed and updated every three years by all nonattainment Districts for ozone (O_3), carbon monoxide (CO), sulfur oxides (SOx), and nitrogen oxides (NOx) (as either receptors or contributors of transported air pollutants). The District's Air Quality Attainment Plan was first adopted in 1994 and updated in 1994, 1997, 2000 and 2003. In 2006 the District collaborated with other air pollution control districts in the NSVAB to prepare a joint Air Quality Attainment Plan. That joint plan has been updated in 2006, 2009 and 2012 as the Northern Sacramento Valley Planning Area Triennial Air Quality Attainment Plan.

An attainment plan is the basis for an air district's functional strategy to meet federal air quality standards. Air basins covered by an attainment plan (which are enforceable by the courts) must realize attainment goals by mandated deadlines or sanctions may result. Key elements of an attainment plan are:

1. Current and future emission inventories;
2. Modeling to quantify needed reductions;
3. Measures to achieve reductions;
4. Analytical demonstration with reductions that provide for attainment;
5. Transportation conformity budgets; and
6. Legal commitment to secure reductions

The applicable attainment plan for stationary sources in Butte County is the Northern Sacramento Valley Planning Area 2012 Triennial Air Quality Attainment Plan (Attainment Plan), which provides a description, designated attainment status, air monitoring and emission inventory, public education programs, pollutant transport, feasible control measures, and ozone trends for the Attainment Plan area. The Attainment Plan is available at the District web site: www.bcaqmd.org. Ambient air quality trends for the Northern Sacramento Valley are presented in Appendix B.

Butte County Air Quality Management District

The Butte County Air Quality Management District (District) is the primary agency responsible for assuring that the National and California Ambient Air Quality Standards (NAAQS and CAAQS, respectively) are attained and maintained in Butte County. The District is one of six air quality management entities within the Northern Sacramento Valley Planning Area. As noted, air quality districts are created pursuant to the California Clean Air Act.

The District's responsibilities to improve air quality in Butte County include:

- Preparing plans for attaining and maintaining air quality standards; adopting and enforcing rules and regulations;
- Issuing and enforcing permits for stationary sources of air pollutants;
- Inspecting stationary sources and responding to citizen complaints;
- Monitoring air quality and meteorological conditions;
- Implementing and enforcing open burning regulations;
- Reviewing air quality analyses prepared pursuant to the California Environmental Quality Act (CEQA);
- Awarding grants to reduce mobile emissions; implementing public outreach campaigns; and
- Assisting local governments in addressing climate change.

The District has statutory authority over certain air quality matters in Butte County, including regulation of stationary sources of air pollution such as processing facilities, service industries, factories, industrial sites, and gasoline service stations through building permit requirements and specific rules and regulations. The District rules and regulations apply to many manufacturing and industrial processes as well as evaporative compounds, gasoline, paint, odors, incineration, smoke and open burning; those that may be applicable to development projects are provided below.

District Rules and Regulations

Through the authority granted it by the CCAA, the District has adopted a number of rules and regulations to implement its air quality plans, including permitting, prohibitions and limits to emissions from a variety of stationary sources, regulation of open burning, regulation of toxic air contaminants, and implementation of FCAA requirements. The District's rules and regulations may be accessed at the District web site: http://www.bcaqmd.org. Compliance with District rules cannot serve as mitigation for projects subject to CEQA. District rules that may be applicable for discretionary projects are provided below, but applicants and lead agencies should consult the District web site to insure that all applicable rules are followed.

Rule 200 - Nuisance

No person shall discharge from any non-vehicular source such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property

Rule 201 – Visible Emissions

No person shall discharge into the atmosphere from any single non-vehicular source of emission whatsoever any air contaminant, other than uncombined water vapor, for a period or periods aggregating more than three (3) minutes in any one hour which is:

1.1 As dark or darker in shade as that designated as No. 2 on the Ringelmann Chart as published by the U.S. Bureau of Mines; or,

2.2 Of such opacity as to obscure an observers view to a degree equal to or greater than does smoke described in Section 1 of this Rule.

Rule 202 – Particulate Matter Concentration

A person shall not discharge into the atmosphere from any source particulate matter in excess of 0.3 grains per cubic foot of gas at standard conditions.

When the source involves a combustion process, the concentration must be calculated to 12 percent (12%) carbon dioxide ($C0_2$). In measuring the combustion contaminants from incinerators used to dispose of combustible refuse by burning, the carbon dioxide ($C0_2$) produced by combustion of any liquid or gaseous fuels shall be excluded from the calculation of 12 percent (12%) of carbon dioxide ($C0_2$).

Rule 205 – Fugitive Dust Emissions

The purpose of this Rule is to reduce ambient concentrations and limit fugitive emissions of fine particulate matter (PM_{10}) from construction activities, bulk material handling and storage, carryout and track-out, and similar activities, weed abatement activities, unpaved parking lots, unpaved staging areas, unpaved roads, inactive disturbed land, disturbed open areas, and windblown dust.

Rule 207 – Wood Burning Devices

The purpose of this Rule is to provide requirements related to sale, installation, operation and testing of wood burning stoves in order to minimize air pollutant emissions.

Rule 220 – Hold-Open Latch Requirement for Retail Service Stations

The purpose of this Rule is to reduce the emissions of gasoline vapors with requirements for the installation and maintenance of hold-open latches on all gasoline dispensing nozzles.

Rule 221 – Phase I Vapor Recovery Requirements

The purpose of this Rule is to is to reduce the emissions of gasoline vapors during transfer of gasoline through the use a CARB-certified Phase I vapor recovery system installed on the stationary storage tank.

Rule 222 – Phase II Vapor Recovery Requirements

The purpose of this Rule is to reduce the emissions of gasoline vapors during the transfer of gasoline through the use of a CARB-certified Phase II vapor recovery system installed on the stationary storage tank.

Rule 223 – Delivery Vessels Equipped with Vapor Recovery

The purpose of this Rule is to reduce the emissions of gasoline vapors during the loading of gasoline into a gasoline delivery vessel through the use of a CARB-certified vapor recovery system or its equivalent approved by the Air Pollution Control Officer.

Rule 224 – Delivery Vessels Not Equipped With Vapor Recovery

The purpose of this Rule is to reduce the emissions of gasoline vapors by prohibiting the loading of a gasoline transfer vessel that does not have a vapor recovery system.

Rule 225 – Vapor Collection and Disposal System at Loading Facilities

The purpose of this Rule is to reduce the emissions of gasoline vapors during the loading of any organic liquids above a specified vapor pressure with an approved vapor collection and disposal system.

Rule 226 – Storage of Gasoline Products at Bulk Facilities

The purpose of this rule is to the emissions of gasoline vapors by regulating the size, working pressures and vapor loss controls of stationary storage tanks at bulk facilities.

Rule 227 – Vapor Recovery Requirements at Bulk Gasoline Facilities

The purpose of this Rule is to reduce the emissions of gasoline vapors from gasoline transfer operations at bulk gasoline facilities.

Rule 228 – Dry Cleaning

The purpose of this rule is to limit air pollutant emissions from petroleum based solvents used in dry cleaning.

Rule 229 – Solvent Storage

The purpose of this rule is to limit air pollutant emissions from petroleum based paints and solvents through proper storage.

Rule 230 – Architectural Coatings

The purpose of this Rule to limit the quantity of Volatile Organic Compounds (VOCs) in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the District.

Rule 231 – Cutback and Emulsified Asphalt

The purpose of this Rule is to limit emissions of volatile organic compounds (VOCs) from the use of cutback and emulsified asphalt in paving, construction, or maintenance of parking lots, driveways, streets, and highways.

Rule 232 – Polyester Resin

The purpose of this Rule is to control Volatile Organic Compound (VOC) emissions from polyester resin operations.

Rule 233 – Organic Solvent Degreasing Operations

The purpose of this Rule is to control volatile organic compound (VOC) emissions from solvent cleaning and degreasing operations.

Rule 234 – Disposal of Organic Waste

The purpose of this Rule is to reduce the emissions of volatile organic compounds (VOC) resulting from the generation, storage, transfer, treatment, recycling or disposal of volatile organic wastes.

Rule 235 – Requirements for Vehicle and Mobile Equipment Coating Operations

The purpose of this Rule is to reduce the emissions of volatile organic compounds (VOC) by regulating limits to VOC coatings on vehicles and mobile equipment.

Rule 236 – Implementation of the Emission Guidelines for Municipal Solid Waste Landfills

The purpose of this Rule is to reduce gas emissions associated with municipal landfills through requirements for site-specific gas collection and control.

Rule 237 – Soil Decontamination

The purpose of this Rule is to limit emissions of volatile organic compounds (VOC) from soil excavation and remediation, or treatment of soil that has been contaminated by volatile organic compounds.

Rule 250 – Industrial, Institutional and Commercial Boilers, Steam Generators and Process Heaters Oxides of Nitrogen Control Measure

The purpose of this Rule is to reduce Oxides of Nitrogen emissions during the operations of Industrial, Institutional and Commercial Boilers, Steam Generators and Process Heaters.

Rule 252 – Stationary Internal Combustion Engines

The purpose of this Rule is to limit emissions of nitrogen oxides (NOx) and carbon monoxide (CO) from stationary internal combustion engines.

Rule 261 – Reduced Sulfur Emission Standards

The purpose of this Rule is to reduce sulfur and other air contaminant emissions from pulp mills.

Rule 262 – Sulfur Oxides Emission Standards

The purpose of this Rule is to minimize emissions of sulfur oxides from any single source.

Rule 300 – Open Burning Requirements, Prohibitions and Exemptions

The purpose of this Rule is to ensure that open burning in the District is conducted in a manner that minimizes emissions and smoke and is managed consistent with State and federal law.

Rule 400 – Permit Requirements

The purpose of this Rule is to require any person constructing, altering, or operating a source that emits or may emit air contaminants to request an Authority to Construct or Permit to Operate from the Air Pollution Control Officer (APCO) and to provide an orderly procedure for application, review, and authorization of new sources and of the modification and operation of existing sources of air pollution. Stationary sources that are subject to Rule 1101-Title V-Federal Operating Permits of these Rules and Regulations shall also comply with the procedures specified in this Rule.

Rule 430 – State New Source Review (SNSR)

The purpose of this Rule is to establish pre-construction review requirements for new and modified stationary sources of air pollution for use of Best Available Control Technology (BACT), offsets, and analysis of air quality impacts, and to ensure that the operation of such sources does not interfere with the attainment or maintenance of ambient air quality

standards, and complies with all other applicable Butte County Air Quality Management District (DISTRICT) Rules and Regulations.

Rule 432 – Federal New Source Review (FNSR)

The purpose of this Rule is to establish pre-construction review requirements for new and modified major stationary sources and major modifications of air pollution for use of Best Available Control Technology (BACT), offsets, and analysis of air quality impacts, and to ensure that the operation of such sources does not interfere with the attainment or maintenance of ambient air quality standards, and complies with all other applicable requirements.

Rule 440 – Portable Equipment Registration

The purpose of this Rule is to establish standards and procedures for the issuance of Certificate(s) of Registration by the Air Pollution Control Officer (APCO) of the Butte County Air Quality Management District (DISTRICT) for registration of certain portable emissions units for operation within the District and to recognize registrations issued by other districts within the State of California with comparable requirements. The DISTRICT may update, through rulemaking, the emission standards for new emissions units as more effective control technology becomes available.

Rule 441 – Registration Requirements for Stationary Compression Ignition (CI) Engines Used in Agricultural Operations

The purpose of this Rule is to establish procedures for the issuance of Certificate(s) of Registration by the Air Pollution Control Officer (APCO) of the Butte County Air Quality Management District (DISTRICT) for registration of stationary compression ignition (CI) engines utilized in Agricultural Operations within the DISTRICT.

Rule 450 – Large Confined Animal Facilities

The purpose of this Rule is to establish permitting requirement intended to reduce emissions of air contaminants associated with operation of large confined animal facilities.

Rule 1000 – State Airborne Toxic Control Measures

The purpose of this Rule is to incorporate California State Airborne Toxic Control Measures (ATCM) as per Health and Safety Code (HSC) Section 39666.

Rule 1001 – Airborne Toxic Control Measure for Stationary Compression Ignition (CI) Engines Used in Agricultural Operations

The purpose of this Rule is to reduce emissions of diesel particulate matter (PM) from stationary diesel-fueled compression ignition (CI) engines used in agricultural operations.

Rule 1002 – Airborne Toxic Control Measure (ACTM) for Compression Ignition (CI) Engines Used at Stationary Sources

The purpose of this airborne toxic control measure (ATCM) is to reduce diesel particulate matter (PM) from stationary diesel-fueled compression ignition (CI) engines.

Rule 1101 – Title V – Federal Operating Permits

This Rule implements the requirements of Title V of the federal Clean Air Act (CAA) as amended in 1990 for Permits to Operate. Title V provides for the establishment of

operating permit programs for sources, which emit regulated air pollutants, including attainment and nonattainment pollutants.

Rule 1102 – conformity to State Implementation Plans of Transportation Plans, Programs, and projects Developed, Funded or Approved Under title 23 U.S.< or the Federal Transit Act

The purpose of this Rule is to implement Section 176(c) of the federal Clean Air Act (CAA), as amended (42 United States Code (U.S.C.) 7401 et seq.), the related requirements of 23 U.S.C. 109(j), and regulations under 40 Code of Federal Regulations (CFR) Part 51 Subpart T, with respect to the conformity of transportation plans, programs, and projects which are developed, funded, or approved by the United States Department of Transportation (DOT), and by metropolitan planning organizations (MPOs), or other recipients of funds under title 23 U.S.C. or the Federal Transit Act (49 U.S.C. 1601 et seq.). This Rule sets forth policy, criteria, and procedures for demonstrating and assuring conformity of such activities to this applicable implementation plan, developed and applicable pursuant to Section 110 and Part D of the CAA.

Rule 1103 – conformity of General Federal Actions to State Implementation Plans

The purpose of this Rule is to implement Section 176(c) of the federal Clean Air Act (CAA), as amended (42 United States Code (U.S.C.) 7401 et seq.) and regulations under 40 Code of Federal Regulations (CFR) Part 51 Subpart W, with respect to the conformity of general federal actions to the applicable implementation plan. Under those authorities, no department, agency or instrumentality of the federal government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan. This Rule sets forth policy, criteria, and procedures for demonstrating and assuring conformity of such actions to the applicable implementation plan.

Rule 1107 – Prevention of Significant Deterioration (PSD) Permits

The federal Prevention of Significant Deterioration (PSD) program is a construction permitting program for new major facilities and major modifications to existing major facilities located in areas classified as attainment or in areas that are unclassifiable for any criteria air pollutant. The application, processing requirements and procedures are those contained in Butte County Air Quality Management District (DISTRICT) Rule 400-Permit Requirements and Rule 432-Federal New Source Review unless otherwise superseded by federal regulation. The intent of this Rule is to incorporate the federal PSD rule requirements into the DISTRICT's Rules and Regulations by incorporating the federal requirements by reference.

Local General Plan Polices

Policies related to air quality and greenhouse gases are often found in the mandatory Conservation Element of a jurisdiction's required General Plan. The air quality section typically provides a description of existing conditions, sources of emissions, and a series of goals, policies and actions to ensure that healthful air quality is achieve to the extent feasible. Project applicants and lead agencies should ensure that projects are consistent with the air quality and greenhouse gas goals and policies provided in the lead agency's general plan. Links to current general plans for jurisdictions within Butte County are provided below:

City of Biggs:

http://www.biggsgeneralplan.com

Butte County:

www.buttegeneralplan.net

City of Chico:

http://www.chico.ca.us/document_library/general_plan/GeneralPlan.asp

City of Gridley:

http://www.gridley.ca.us/city-departments/planning-department/documents

Town of Paradise:

http://www.townofparadise.com/index.php/component/docman/doc_view/659-town-of-paradise-1994-general-plan-policy-document?Itemid=354

A-4 Permit Requirements

What is the District's Role in Permitting?

The Butte County Air Quality Management District (District) regulates stationary sources of air pollution such as processing facilities, service industries, factories, industrial sites, and gasoline stations. The District regulations apply to many manufacturing and industrial processes as well as evaporative compounds, gasoline, paint, odors, incineration, smoke and open burning.

Government Code section (GC § 65850.2) identifies certain air pollution information that cities and counties are required to collect for new building and development projects. California Health & Safety Code sections (HSC § 42301.6 to 42301.9) address the release of hazardous air contaminants near schools, and discuss requirements for air district permits for new or modified facilities.

The following overview describes how the law may affect a discretionary project subject to CEQA.

Building Permit Requirements

Under the law, final certificates of occupancy may not be issued unless certain requirements are met. All applicants must comply with District permit regulations, or demonstrate to the District that the air permit regulations do not apply to their particular project.

The District recommends a hazardous material and emissions questionnaire (questionnaire) accompany all building permit applications which have the potential to emit air pollutants. The questionnaires are distributed by City and County Building Departments (and occasionally by County Environmental Health). The questionnaire pertains to facility location and equipment, processes, and materials which may require an air District permit or other written authorization. The questionnaire should be completed and returned to the Building Department for initial screening and processing. The questionnaire is forwarded to the District if either or both of the following questions are answered YES: (1) Is the business/facility/operation is located within 1000 ft. of the outer boundary a school or school site?; (2) Does the business/facility/operation have

the potential to emit any air pollutant: e.g. dust, soot, odors, fumes, vapors, or other volatile compounds?

The District currently receives a pink copy of hazardous material and emissions questionnaire from the County and City of Chico. The process for completing the questionnaire begins on page A-20. Although the law does not require city/county to use a questionnaire, the District has found them valuable in notifying applicants of local, state and federal requirements. The District encourages all jurisdictions to use this type of questionnaire for hazardous materials and emissions. Page A-18 lists several examples of District Permit Categories. It should be noted that all residential construction is exempt from these requirements.

If you are unsure whether or not your project is subject to permit requirements, the necessary information can be obtained by contacting the District and describing the proposed project. District staff can then determine if an application for a Permit must be filed.

Requirements for Existing or Proposed Projects Near Schools

Under the California Health and Safety Code, there are specific requirements which must be met by both the District and existing or proposed commercial or industrial facilities near a school.

Upon receipt of the questionnaire, the District will evaluate it for equipment or processes requiring a permit and for proximity to sensitive receptors. This initial screening will occur within fourteen (14) days of receipt of the questionnaire. The District will notify the applicant if further action is necessary under the law and/or the District permit process. If additional action is required under the law or the District permitting process, a description of required actions will be included in the letter sent to the applicant.

Construction of New Schools

For construction of new schools, any person or agency preparing an Environmental Impact Report for a proposed school site must consult with the city, county, and the District to identify facilities within one-quarter mile of the proposed school site which may emit hazardous air emissions, or have the potential to explode or catch fire. The city, county, and District have 30 days to provide this information to the person or agency seeking it. This requirement is spelled out in the Public Resources Code Sec. 21151.8, Subd.(a) (4).

Foreseeable Threat of Release of Hazardous Air Contaminant

Under certain conditions, the law requires the District to take action when there is a reasonable threat of release of a hazardous air contaminant. District action is required if:

1. The release is predicted from a facility located within 1000 feet of a school; and
2. The release has the potential to impact persons at the school to the extent that a public health threat or nuisance could result.

When the release of a hazardous air contaminant is forecast, the District must notify the agency responsible for administering the hazardous materials policy. In addition, the District may respond to this reasonable threat of release by:

1. Issuing an immediate order to prevent the release; or,
2. Mitigating the foreseeable threat of a release, pending a hearing; or,
3. Applying to the District Hearing Board for issuance of an Order of Abatement.

Furthermore, if the principal of a school contacts the District to request an investigation of odors or possible air pollution sources as the cause of illness among school children, within 24 hours the District must respond and notify the city or county official responsible for administering hazardous materials policy and the fire department having jurisdiction over the school.

Butte County Air Quality Management District Permit Categories

The following is a list of processes, operations, and pollution control equipment that will normally require an Authority to Construct and a Permit to Operate from the District.

CHEMICALS
Ethylene Oxide Sterilizers
Acid Chemical Milling
Evaporators, Dryers, and Stills
Processing Organic Materials
Dry Chemical Mixing and Storage
Soap & Detergent
Fertilizer Manufacturing and Storage

COATINGS AND SURFACE PREPARATION
Abrasive Blasting Equipment
Coating and Painting Operations
Paint, Stain, and Ink Manufacturing
Printing, Graphic Arts Operations

COMBUSTION
Internal Combustion Engines (50 hp or larger)
Incinerators
Crematories
Boilers and Heaters (1 million BTU/hr or larger)
Furnaces

AIR POLLUTION CONTROL EQUIPMENT
Cyclones, Bag houses, Settling Chambers
Scrubbers, Electric Static Precipitators (ESP)

ELECTRONICS
Solder Levelers
Wave Solder Machines
Vapor Degreasers
Fume Hood Scrubbers
Electrolytic Plating
Silicone Chip Manufacturing

FOOD & AG PROCESSING
Smokehouses
Feed and Grain Mills
Coffee Roasters
Bulk Flour/Grain Storage

METALS
Metal Smelters
Galvanizing Operations
Nickel, Cadmium or Chrome Plating
Chromic Acid Anodizing
Metal Ore Processing

ROCK AND MINERAL
Hot Asphalt Batch Plants
Sand, Rock, Aggregate Plants
Concrete Batch, Concrete Mixers, and Silos
Brick Manufacturing
Screening and Crushing Operations

PETROLEUM FUELS MARKETING
Gasoline and Alcohol Bulk Plants and Terminals
Gasoline and Alcohol Fuel Dispensing

SOLVENT USE
Vapor and Cold Degreasing
Solvent and Extract Dryers
Dry Cleaning

OTHER
Aqueous Waste Neutralization
Landfill Gas Flare or Recovery Systems
Waste Disposal, Rendering, Reclamation Units
Grinding Booths and Rooms
Oil Field Exploration or Production
Plastic/Fiberglass/Resin Operations
Soil Aeration/Reclamation or Remediation
Storage of Organic Liquids
Powder Coating
Fiberglass Chopper Guns
Waste Water Treatment Works
Synthetic Fiber Production
Wood Processing
Sources of volatiles, dust or toxics

Examples of Hazardous Materials:

Businesses which store, handle, or use hazardous materials will require clearance from the City or County Fire Department or Butte County Environmental Health before obtaining a Building Permit or Certificate of Occupancy.

Ammonia
Acids and Bases
Chlorine
Compressed Gases
Corrosives
Cryogenic Fluids
Explosives
Fertilizers
Flammable Liquids and Solids
Gasoline
Hazardous Material Mixtures
Herbicides
Industrial Cleaners
Infectious/Biological Materials
Oxidizing Materials
Paint Thinners
Paints
Pesticides
Petroleum Products
Poisons
Pyrophoric/Hypergolic Materials
Radioactives
Solvents
Waste Oils
Water Reactives
Welding Gases

NOTE: Other equipment not listed here that is capable of emitting air contaminants may require a Butte County Air Quality Management District Permit. If there are any questions, contact the District at (530) 332-9400. For information on Hazardous Materials located within the County of Butte contact the Butte County Environmental Health Department at (530) 538-7281.

IF YOU INSTALL AND/OR OPERATE EQUIPMENT WITHOUT A REQUIRED PERMIT, YOU MAY BE SUBJECT TO LEGAL ACTION AND PENALTIES OF UP TO $25,000 PER DAY FOR EACH DAY OF VIOLATION.

Timeline and Implementation Process

Outside Agency (Building Department) Responsibilities

A. Building Department distributes Application Packet to applicant. This packet should include GC §65850.2, HSC §§ 42301.6 to 42301.9 and District Permit information.

B. Applicant completes the application packet, and returns it to the Building Department.

C. Building Department conducts initial screening of Hazardous Materials Questionnaire (hereafter referred to as the Questionnaire). This screening consists of reviewing the Questionnaire for answers to the following questions:

    1. (Question #3) Is the business/facility/operation to be located within 1000 feet or the outer boundary of a school or school site?

    2. (Question #4) Does the business/facility/operation have the potential to emit any air pollutants; e.g., dust, soot, odors, fumes, vapors, or other volatile compounds? (Will the intended occupant(s) install or use any of the equipment listed on attached list "Butte County AQMD Permit Categories").

D. The Building Department performs one of the following actions, based on the response to the questions listed in Section I.C. above:

    1. If the answer to Question #3 is NO, then this project is exempt from GC §65850.2 and HSC §§ 42301.6 to 42301.9 requirements.

2. If the answer to Question #4 is YES, the questionnaire is forwarded to the District for further review.

District Responsibilities

The District reviews Questionnaire received from the Building Department or applicant. Within 14 days, one of the following determinations will be made:

A. If the answer to Question #4 is YES and the facility is not located within 1000 feet of a school, then the project is exempt from further processing under GC §65850.2 and HSC §§ 42301.6 to 42301.9, but IS subject to District permitting requirements. As a result, the District will take the following actions:

   Within 30 days of receipt of the questionnaire from the Building Department or applicant, the District will:

   1. Send a letter to the project applicant indicating that this project IS subject to a District permit. Accompanying this letter will be an Authority to Construct (AC) application, and other explanatory information.

   2. Upon receipt of an AC application, the District has 30 days to determine if the application is complete. A letter of completeness (or incompleteness) is sent to the applicant prior to the end of the 30-day period. If the application is incomplete, the District will request additional information in the aforementioned letter. If the application is complete, then the District will issue a completeness letter indicating that they have 180 days to issue an AC.

   3. After project construction is completed, the applicant must notify the District that construction is complete. A field inspection will then be conducted by District staff to determine compliance with applicable District Rules and Regulations. Upon verification of compliance, a Permit-to-Operate (PO) for the subject facility is issued by the District.

B. District Permit required; potentially subject to GC §65850.2 and HSC §§ 42301.6 to 42301.9 Requirements. If the answer to Questions #4 is YES, and the facility is within 1000 feet of a school, the proposed project will be subject to the District permitting process. The District will perform the following actions:

   Within 30 days of receipt of the questionnaire from the Planning or Building Department, the District will:

   1. Send a letter to the project applicant indicating that this project IS subject to District permit and applicable public noticing requirements in accordance to District policies and procedures. Accompanying this letter will be an AC application, a description of public noticing requirements and other explanatory information.

   2. Upon receipt of an AC application, the District has 30 days to determine if the application is complete. A letter of completeness (or incompleteness) is sent to the applicant prior to the end of the 30-day period. If the application is incomplete, the District will request additional information in the aforementioned letter.

   3. When the District has deemed the AC application complete, the applicant will then be required to comply with the District's requirements implementing the HSC §§ 42301.6 to 42301.9. When public noticing requirements must be demonstrated, the requirements are as follows:

      a. The Air Pollution Control Officer (APCO) shall, at the expense of the permit applicant, distribute (or mail) a public notice to the parents or guardians of children enrolled in

ANY school that is located within 1/4 mile of the proposed project site, and to each address within a 1000 ft. radius of the proposed source. An assessor's parcel map will be used to determine the area encompassing addresses within the 1000 ft. radius of the proposed project.

b. The public noticing period extends for 30 days, and MUST begin at least 30 days prior to the District taking final action on the AC application for the proposed project. This notice may be combined with any other notice on the project or permit, which is required by law. The APCO shall review and consider all public comments received during the 30 days after the notice is distributed, and shall include written responses to the comments in the permit application file prior to taking final action on the application.

c. State law requires the District approve or deny the AC within 180 days of the date on which the A/C application was deemed complete. The public noticing period and the District response to public comments MUST occur within this time period. The District cannot issue the AC until the District's policies and procedures implementing the public noticing requirements for HSC §§ 42301.6 to 42301.9 have been satisfied.

d. After project construction is completed, the applicant must indicate in writing to the District that construction is complete. A field inspection will then be conducted by District staff to determine compliance with applicable District Rules and Regulations. Upon verification of compliance, a PO for the subject facility is issued by the District.

APPENDIX B

B-1 Regional and Local Air Quality

B-2 Measuring Air Quality

B-3 Regional and Local Air Quality Trends

B-1 Sacramento Valley Air Basin and Local Air Quality

Butte County is located within the Sacramento Valley Air Basin (SVAB), comprising the northern half of California's 400-mile long Great Central Valley. The SVAB encompasses approximately 14,994 square miles with a largely flat valley floor (excepting the Sutter Buttes) about 200 miles long and up to 150 miles wide, bordered on its east, north and west by the Sierra Nevada, Cascade and Coast mountain ranges, respectively.

The SVAB, containing 11 counties and some two million people, is divided into two air quality planning areas based on the amount of pollutant transport from one area to the other and the level of emissions within each. Butte County is within the Northern Sacramento Valley Air Basin (NSVAB), which is composed of Butte, Colusa, Glenn, Shasta, Sutter, Tehama, and Yuba Counties.

Emissions from the urbanized portion of the basin (Sacramento, Yolo, Solano, and Placer Counties) dominate the emission inventory for the Sacramento Valley Air Basin, and on-road motor vehicles are the primary source of emissions in the Sacramento metropolitan area. While pollutant concentrations have generally declined over the years, additional emission reductions will be needed to attain the State and national ambient air quality standards in the SVAB.

Seasonal weather patterns have a significant effect upon regional and local air quality. The Sacramento Valley and Butte County have a Mediterranean climate, characterized by hot, dry summers and cool, wet winters. Winter weather is governed by cyclonic storms from the North Pacific, while summer weather is typically subject to a high pressure cell that deflects storms from the region.

In Butte County, winters are generally mild with daytime average temperatures in the low 50s°F and nighttime temperatures in the upper 30s°F. Temperatures range from an average January low of approximately 36°F to an average July high of approximately 96°F, although periodic lower and higher temperatures are common. Rainfall between October and May averages about 26 inches but varies considerably year to year. Heavy snowfall often occurs in the northeastern mountainous portion of the County. Periodic rainstorms contrast with occasional stagnant weather and thick ground or "tule" fog in the moister, flatter parts of the valley. Winter winds generally come from the south, although north winds also occur.

Diminished air quality within Butte County largely results from local air pollution sources, transport of pollutants into the area from the south, the NSVAB topography, prevailing wind patterns, and certain inversion conditions that differ with the season. During the summer, sinking air forms a "lid" over the region, confining pollution within a shallow layer near the ground that leads to photochemical smog and visibility problems. During winter nights, air near the ground cools while the air above remains relatively warm, resulting in little air movement and localized pollution "hot spots" near emission sources. Carbon monoxide, nitrogen oxides, particulate matters and lead particulate concentrations tend to elevate during winter inversion conditions when little air movement may persist for weeks.

As a result, high levels of particulate matter (primarily fine particulates or $PM_{2.5}$) and ground-level ozone are the pollutants of most concern to the NSVAB Districts. Ground-level ozone, the principal component of smog, forms when reactive organic gases (ROG) and nitrogen oxides (NOx) – together known as ozone precursor pollutants – react in strong sunlight. Ozone levels tend to be highest in Butte County during late spring through early fall, when sunlight is strong and constant, and emissions of the precursor pollutants are highest.

B-2 Monitoring Air Quality

The local air districts within the Northern Sacramento Valley Air Basin (under the auspices of CARB) maintain 14 monitoring stations to continuously measure criteria air pollutants. In Butte County, CARB monitors air quality at four stations: Chico (East Avenue); Paradise (4405 Airport Road and Paradise Theater); and Gridley (Cowee Avenue). The Paradise Theater and Gridley Cowee Avenue monitoring sites do not have official air quality data on record. The Paradise 4405 Airport Road site has data for ozone and the Chico East Avenue site has data for ozone, carbon monoxide, nitrogen dioxide and particulate matter. Prior to June 2012 the Chico site was located at Manzanita Avenue. Note that the federal ozone 1-hour standard was revoked by the EPA and is no longer applicable for federal standards.

B-3 Regional and Local Air Quality Trends

Between 1980 and 2020, the population in the Sacramento Valley Air Basin is projected to increase 120 percent compared with an 86 percent increase statewide, representing growth from 1.5 million in 1980 to almost 3.3 million in 2020. With the growth in population will be a projected 200 percent increase in vehicle miles travelled, from about 30 million miles in 1980 to nearly 90 million miles in 2020.

Ozone Emission Trend Peak values in the Sacramento Valley Air Basin have declined since 2000 with the peak 8-hour indicator showing a decrease of about 15 percent in Butte County. Looking at the number of days above the State and federal standard, the trend is much more variable and dependent on climatic conditions and exceptional events. However, the number of 8-hour exceedance days in Butte County has declined by nearly 78% since 2000.

Local, Butte County and regional air quality data and trends are available at the following CARB web site: http://www.arb.ca.gov/adam/index.html. Tables B-1 through B-3 provide ozone, PM2.5 and PM10 trends in the Sacramento Valley Air Basin for the period 2010 – 2012.

Table B-1. SVAB Ambient Air Quality Monitoring Data Summary for Ozone 2010 - 2012

	Days>Standard				1-Hour Observations			8-Hour Averages				Year	
	State		National			State	Nat'l	State		National		Coverage	
Year	1-hr	8-hr	*1-hr*	08-hr	Max	D.V.[1]	*D.V.*[2]	Max	D.V.1	Max	08 D.V.[2]	Min	Max
2012	**22**	**75**	***1***	**46**	**0.125**	**0.12**	*0.123*	**0.106**	**0.107**	**0.106**	**0.095**	0	100
2011	**26**	**59**	*0*	**46**	**0.123**	**0.12**	*0.12*	**0.098**	**0.112**	**0.098**	**0.095**	17	100
2010	15	46	*0*	29	0.124	0.13	*0.132*	0.112	0.116	0.112	0.102	85	100

Source: California Air Resources Board Air Quality Trends Summary: http://www.arb.ca.gov/adam/trends/trends2.php

All concentrations expressed in parts per million.

The national 1-hour ozone standard was revoked in June 2005 and is no longer in effect. Statistics related to the revoked standard are shown in italics.

State and federal exceedances are indicated in bold. An exceedance is not necessarily a violation.

[1]D.V. = State Designation Value

[2]D.V. = National Design Value

Table B-2. SVAB Ambient Air Quality Monitoring Data Summary for $PM_{2.5}$ 2010 - 2012

Year	Est. Days > Nat'l '06 Std.	Annual Average		Nat'l Ann. Std. D.V.[1]	State Annual D.V.[2]	Nat'l '06 Std. 98th Percentile	Nat'l '06 24-Hr Std. D.V.[1]	High 24-Hour Average		Year Coverage	
		Nat'l	State					Nat'l	State	Min	Max
2012	**3.1**	9.1	12.1	9.5	**15**	27.1	31	**28.6**	46.8	46	100
2011	**36.5**	12.1	**14.6**	10.1	**15**	**46.2**	35	**51.8**	66	86	100
2010	**1.1**	8.8	10.9	11.5	**19**	29	**51**	**31.9**	39.8	46	100

Source: California Air Resources Board Air Quality Trends Summary: http://www.arb.ca.gov/adam/trends/trends2.php

All concentrations expressed in micrograms per cubic meter.

State and federal exceedances are indicated in bold. An exceedance is not necessarily a violation.

State and national statistics may differ for the following reasons:

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[1]D.V. = National Design Value

[2]D.V. = State Designation Value

Table B-3. SVAB Ambient Air Quality Monitoring Data Summary for PM_{10} 2010 - 2012

Year	Est > Std.		Annual Average		3-Year Average		High 24-Hr Average	
	Nat'l	State	*Nat'l*	State	*Nat'l*	State	Nat'l	State
2012	0	**18.7**	*27.7*	**24.3**	*23*	**25**	94.6	**96.7**
2011	0	**24.4**	*24.2*	**25.1**	*23*	**26**	73.5	**73.0**
2010	0	12.2	*20.5*	21	*26*	33	87.4	87.4

Source: California Air Resources Board Air Quality Trends Summary: http://www.arb.ca.gov/adam/trends/trends2.php

All concentrations expressed in micrograms per cubic meter.

The national annual average PM10 standard was revoked in December 2006 and is no longer in effect.

State and federal exceedances are indicated in bold. An exceedance is not necessarily a violation.

Statistics may include data that are related to an exceptional event such as high winds and/or fire.

State and national statistics may differ for the following reasons:

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

Tables B-4 and B-5 provide ozone and $PM_{2.5}$ trends in Butte County for the period 2010 – 2012 (PM_{10} data is not available at the CARB web site).

Table B-4. Butte County Ambient Air Quality Monitoring Data Summary for Ozone 2010 - 2012

Year	Days > Standard			1-Hour Observations	8-Hour Averages	
	1-Hour	8-Hour				National Standard Design Value
	State	State	National	Maximum	Maximum	
2012	0	25	5	0.088	0.08	0.077
2011	0	16	6	0.094	0.081	0.077
2010	0	14	4	0.085	0.078	0.079

Source: California Air Resources Board Air Quality Trends Summary: http//wwww.arb.ca.gov/adam/trends/trends2.php

Table B-5. Butte County Ambient Air Quality Monitoring Data Summary for $PM_{2.5}$ 2010 - 2012

Year	Est. Days > Nat'l '06 Std.	Annual Average		Nat'l Ann. Std. D.V.[1]	State Annual D.V.[2]	Nat'l '06 Std. 98th Percentile	Nat'l '06 24-Hr Std. D.V.[1]	High 24-Hour Average		Year Coverage	
		Nat'l	State					Nat'l	State	Min.	Max.
2012	*	*	12.1	*	**15**	*	*	28.6	123.3	46	65
2011	**36.5**	12.1	**14.6**	10.1	**15**	**46.2**	35	**51.8**	66	100	100
2010	0	8	10.9	11.5	18	29	51	31.9	39.8	91	91

Source: California Air Resources Board Air Quality Trends Summary: http://www.arb.ca.gov/adam/trends/trends2.php

All concentrations expressed in micrograms per cubic meter.

State and federal exceedances are indicated in bold. An exceedance is not necessarily a violation.

State and national statistics may differ for the following reasons:

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[1]D.V. = National Design Value

[2]D.V. = State Designation Value

*There was insufficient (or no) data available to determine the value.

APPENDIX C

Best Practices and Mitigation Measures to Reduce Air Quality and Greenhouse Gas Impacts

C-1 Best Practices

C-2 Standard On- and Off-Site Mitigation Measures

C-1 Best Practices to Minimize Air Quality and GHG Impacts

The following best practice measures to reduce impacts to air quality should be incorporated into project descriptions as commitments by the applicant. Note that some of these best practice measures are required by federal, state or local regulations.

Diesel PM Exhaust from Construction Equipment

- All on- and off-road diesel equipment shall not idle for more than five minutes. Signs shall be posted in the designated queuing areas and/or job sites to remind drivers and operators of the five minute idling limit.
- Idling, staging and queuing of diesel equipment within 1,000 feet of sensitive receptors is prohibited.
- All construction equipment shall be maintained in proper tune according to the manufacturer's specifications. Equipment must be checked by a certified mechanic and determined to be running in proper condition before the start of work.
- Install diesel particulate filters or implement other CARB-verified diesel emission control strategies.
- To the extent feasible, truck trips shall be scheduled during non-peak hours to reduce peak hour emissions.

Operational TAC Emissions

- All mobile and stationary Toxic Air Contaminants (TACs) sources shall comply with applicable Airborne Toxic Control Measures (ATCMs) promulgated by the CARB throughout the life of the project (see http://www.arb.ca.gov/toxics/atcm/atcm.htm).
- Stationary sources shall comply with applicable District rules and regulations.

Diesel Idling Restrictions for Construction Phases

The District recognizes the public health risk reductions that can be realized by idle limitations for both on and off-road equipment. The following idle restricting measures are required for the construction phase of projects:

a) Idling Restrictions for On-Road Vehicles

Section 2485 of Title 13 California Code of Regulations applies to California and non-California based and diesel-fueled commercial motor vehicles operating in the State with gross vehicular weight ratings of greater than 10,000 pounds and licensed for operation on highways. In general, the regulation specifies that drivers of said vehicles:

- Shall not idle the vehicle's primary diesel engine for greater than 5 minutes at any location, except as noted in Subsection (d) of the regulation; and,
- Shall not operate a diesel-fueled auxiliary power system (APS) to power a heater, air conditioner, or any ancillary equipment on that vehicle during sleeping or resting in a sleeper berth for greater than 5.0 minutes at any location when within 100 feet of a restricted area, except as noted in Subsection (d) of the regulation.

- Signs must be posted in the designated queuing areas and job sites to remind drivers of the 5 minute idling limit. The specific requirements and exceptions in the regulation can be reviewed at the following web site: www.arb.ca.gov/msprog/truck-idling/2485.pdf.

b) Idling Restrictions for Off-Road Equipment

- Off-road diesel equipment shall comply with the 5 minute idling restriction identified in Section 2449(d)(3) of the California Air Resources Board's In-Use off-Road Diesel regulation: www.arb.ca.gov/regact/2007/ordiesl07/frooal.pdf.
- Signs shall be posted in the designated queuing areas and job sites to remind off-road equipment operators of the 5 minute idling limit.

Fugitive Dust

Construction activities can generate fugitive dust that can be a nuisance to local residents and businesses near a construction site. Dust complaints could result in a violation of the District's "Nuisance" and "Fugitive Dust" Rules 200 and 205, respectively. The following is a list of measures that may be required throughout the duration of the construction activities:

- Reduce the amount of the disturbed area where possible.
- Use of water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. An adequate water supply source must be identified. Increased watering frequency would be required whenever wind speeds exceed 15 mph. Reclaimed (non-potable) water should be used whenever possible.
- All dirt stockpile areas should be sprayed daily as needed, covered, or a District approved alternative method will be used.
- Permanent dust control measures identified in the approved project revegetation and landscape plans should be implemented as soon as possible following completion of any soil disturbing activities.
- Exposed ground areas that will be reworked at dates greater than one month after initial grading should be sown with a fast-germinating non-invasive grass seed and watered until vegetation is established.
- All disturbed soil areas not subject to re-vegetation should be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the District.
- All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site.
- All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with local regulations.
- Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site.

- Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water should be used where feasible.
- Post a sign in a prominent location visible to the public with the telephone numbers of the contractor and District for any questions or concerns about dust from the project.

All fugitive dust mitigation measures required should be shown on grading and building plans. In addition, the contractor or builder should designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holidays and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the District prior to land use clearance for map recordation and finished grading of the area.

Please note that violations of District Regulations are enforceable under the provisions of California Health and Safety Code Section 42400, which provides for civil or criminal penalties of up to $25,000 per violation.

C-2 On- and Off-Site Mitigation Measures

This section provides a number of on- and off-site mitigation measures intended to reduce criteria air pollutants, diesel PM and GHGs resulting from construction and operation of a project. (Mitigation of toxic air contaminants is discussed in Section 5.) Additional discussion of GHG mitigation measures providing an introduction to use of the hundreds of measures in *Quantifying Greenhouse Gas Measures* (CAPCOA 2010) may be found in Section 6.

Construction Mitigation Measures

Construction Equipment Emission Reductions

Standard mitigation measures for reducing NOx, ROG, PM and Diesel PM include:

- Maintain all construction equipment in proper tune according to manufacturer's specifications;
- Fuel all off-road and portable diesel powered equipment with ARB certified motor vehicle diesel fuel (non-taxed version suitable for use off-road);
- Use diesel construction equipment meeting ARB's Tier 2 certified engines or cleaner off-road heavy-duty diesel engines, and comply with the State Off-Road Regulation;
- Use on-road heavy-duty trucks that meet the ARB's 2007 or cleaner certification standard for on-road heavy-duty diesel engines, and comply with the State On-Road Regulation;
- Construction or trucking companies with fleets that do not have engines in their fleet that meet the engine standards identified in the above two measures (e.g. captive or NOx exempt area fleets) may be eligible by proving alternative compliance;
- All on- and off-road diesel equipment shall not idle for more than 5 minutes. Signs shall be posted in the designated queuing areas and/or job sites to remind drivers and operators of the 5 minute idling limit;
- Diesel idling within 1,000 feet of sensitive receptors is prohibited;
- Staging and queuing areas shall not be located within 1,000 feet of sensitive receptors;

- Electrify equipment when feasible;
- Substitute gasoline-powered in place of diesel-powered equipment, where feasible; and
- Use alternatively fueled construction equipment on site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel.

Best Available Control Technology (BACT) for Construction Equipment

If the estimated construction phase ozone precursor emissions from the actual fleet for a given phase are expected to exceed the District's threshold of significances after the standard mitigation measures are factored into the estimation, then BACT needs to be implemented to further reduce these impacts. BACT measures include:

- Further reducing emissions by expanding use of Tier 3 and Tier 4 off-road and 2010 on-road compliant engines;
- Repowering equipment with the cleanest engines available; and
- Installing California Verified Diesel Emission Control Strategies. These strategies are listed at: http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm
- Implementing a design measure to minimize emissions from on and off-road equipment associated with the construction phase. This measure should include but not be limited to the following elements:
    - Tabulation of on and off-road construction equipment (type, age, horse-power, engine model year and miles and/or hours of operation);
    - Calculate daily worst case emissions and the quarterly emissions that include the overlapping segments of construction phases;
    - Equipment Scheduling (NOx and PM)
        - Schedule activities to minimize the amount of large construction equipment operating simultaneously during any given time period;
        - Locate staging areas at least 1000 feet away from sensitive receptors;
    - Where feasible
        - Limit the amount of cut and fill to 2,000 cubic yards per day;
        - Limit the length of the construction work-day period; and,
        - Phase construction activities.

On-Road Truck Management (NOx and PM)

- Schedule construction truck trips during non-peak hours to reduce peak hour emissions;
- Locate staging areas at least 1000 feet away from sensitive receptors;
- Proposed truck routes should be evaluated to define routing patterns with the least impact to residential communities and sensitive receptors and identify these receptors in the truck route map;
- To the extent feasible, construction truck trips should be scheduled during non-peak hours to reduce peak hour emissions; and

- Trucks and vehicles should be kept with the engine off when not in use, to reduce vehicle emissions. Signs shall be placed in queuing areas to remind drivers to limit idling to no longer than 5 minutes.

Off-Site Mitigation for Construction Equipment

The District recommends the off-site mitigation rate be based on the current project cost effectiveness factor from the Carl Moyer Memorial Air Quality Standards Attainment Program. The current off-site mitigation rate is $17,720 per ton of ozone precursor emissions (NOx or ROG) over the District threshold calculated over the length of the expected exceedance. The applicant may use these funds to implement District approved emission reduction projects near the project site. If off-site mitigation is chosen as a mitigation strategy, the plan for it should be agreed upon and in place prior to the start of construction to help facilitate emission offsets that are as real-time as possible.

Examples off-site mitigation strategies include, but are not limited to, the following:

- Fund a program to buy and scrap older heavy-duty diesel vehicles or equipment;
- Replace/repower transit buses;
- Replace/repower heavy-duty diesel school vehicles (i.e. bus, passenger or maintenance vehicles);
- Retrofit or repower heavy-duty construction equipment, or on-road vehicles;
- Repower or contribute to funding clean diesel locomotive main or auxiliary engines;
- Purchase VDECs for local school buses, transit buses or construction fleets;
- Install or contribute to funding alternative fueling infrastructure (i.e. fueling stations for CNG, LPG, conductive and inductive electric vehicle charging, etc.); and
- Fund expansion of existing transit services.

Construction Worker Trips (NOx)

Implement a District approved Trip Reduction Program to reduce construction worker commute trips, which includes carpool matching, vanpooling, transit use, etc. Monitor worker use of alternative transportation throughout the project to ensure compliance.

Complaint Response (NOx and PM)

The project mitigation program should include a section that addresses complaints and complaint handling. At a minimum this section shall include the following:

1. The person(s) responsible for addressing and resolving all complaints regarding the construction activity and their contact information:
    a. Name(s)
    b. Company and Title(s)
    c. Phone numbers and physical address.

2. A hotline telephone number shall be established and publicized to help facilitate rapid complaint identification and resolution. In addition, Prop 65 notifications with regard to toxic diesel emissions must be made when applicable.
3. An action plan section shall be outlined that includes additional measures or modifications to existing mitigation measures in the event of complaints.
4. All complaints shall be reported immediately to the District.

Construction Phase Greenhouse Gas (GHG) Emission Reductions

CEQA requires GHG impact evaluation and the implementation of feasible mitigation at the project level. As such, the project's Mitigated Negative Declaration should evaluate the project's carbon dioxide (CO_2) emissions as well as other GHG sources converted to carbon dioxide equivalents and should identify feasible mitigation that the project shall implement. In some cases where the available measures are marginally effective, off-site GHG mitigation fees may be appropriate. Many of the mitigation measures provided in Table C-1 at the end of this Appendix are provided by the California Air Pollution Control Officer Association as effective approaches to reducing GHG (as well as other pollutant) emissions.

Permitting Requirements

Portable equipment, 50 horsepower (hp) or greater, used during construction activities may require California statewide portable equipment registration (issued by the California Air Resources Board) or a District registration or permit. Operational sources may also require District permits. A guide to equipment and operations that may have permitting requirements may be found in Appendix A, but should not be viewed as exclusive.

Special Conditions

Naturally Occurring Asbestos

Naturally occurring asbestos (NOA) has been identified as a toxic air contaminant by the California Air Resources Board (CARB). If the project site is located in an area identified as containing NOA (see Figure 2), then applicants must comply with the CARB Air Toxics Control Measures (ATCMs) for Construction, Grading, Quarrying, and Surface Mining Operations. This may include development of an Asbestos Dust Mitigation Plan and an Asbestos Health and Safety Program for approval by the District. Alternatively, a geologic evaluation can be conducted to demonstrate that NOA is not present within the area to be disturbed. If NOA is not present, an exemption request can be filed with the District. Please contact the District for more information.

Demolition of Asbestos Containing Materials

Demolition activities can have potential negative air quality impacts, including issues surrounding proper handling, demolition, and disposal of asbestos containing material (ACM). Asbestos containing materials could be encountered during demolition or remodeling of existing buildings. Asbestos can also be found in utility pipes/pipelines (transit pipes or insulation on pipes). If utility pipelines are scheduled for removal or relocation or building(s) are removed or renovated, this project may be subject to various regulatory jurisdictions, including the requirements stipulated in the National Emission Standard for Hazardous Air Pollutants (40CFR61, Subpart M - asbestos NESHAP). These requirements include but are not limited to: 1) notification requirements to the ARB and the District, 2) asbestos survey conducted by a Certified Asbestos Inspector, and 3)

applicable removal and disposal requirements of identified ACM. Please contact the ARB at (916) 322-6036 for further information.

Lead During Demolition

Demolition of structures coated with lead based paint is a concern for the District. Improper demolition can result in the release of lead containing particles from the site. Sandblasting or removal of paint by heating with a heat gun can result in significant emissions of lead. Therefore, proper abatement of lead before demolition of these structures must be performed in order to prevent the release of lead from the site. Depending on removal method, a District permit may be required. Contact the District Engineer at (530) 332-9400 for more information.

Operational Mitigation Measures

Site Design Mitigation Measures

Site design and project layout can be effective methods of mitigating air quality impacts of development. Land use development that incorporates urban infill, higher density, mixed use and walk-able, bike-friendly, and transit oriented designs can significantly reduce vehicle activity and associated air quality impacts. The District recommends that developers contact its staff early in the scoping phase of a project to discuss project factors which may influence indirect source emissions and reduce mobile source emissions.

Energy Efficiency Mitigation Measures

Residential and commercial energy use for lighting, heating and cooling is a significant source of direct and indirect air pollution nationwide. Reducing site and building energy demand will reduce emissions at the power plant source and natural gas combustion in homes and commercial buildings. The energy efficiency of both commercial and residential buildings can be improved by orienting buildings to maximize natural heating and cooling.

Transportation Mitigation Measures

Vehicle emissions are often the largest continuing source of emissions from the operational phase of a development. Reducing the demand for single-occupancy vehicle trips is a simple, cost-effective means of reducing vehicle emissions. In addition, using cleaner fueled vehicles or retrofitting equipment with emission control devices can reduce the overall emissions without impacting operations. In today's marketplace, clean fuel and vehicle technologies exist for both passenger and heavy-duty applications.

Off-Site Mitigation

Operational phase emissions from large development projects that cannot be adequately mitigated with on-site mitigation measures alone may require off-site mitigation in order to reduce air quality impacts to a level of insignificance. Whenever off-site mitigation measures are deemed necessary, it is important that the developer, lead agency and District work together to develop and implement the measures to ensure successful outcome, and should be developed and agreed upon by all parties prior to the start of construction.

The current (2013) recommended off-site mitigation rate is $17,720 per ton of ozone precursor emissions (NOx or ROG) over the District threshold calculated over the length of the expected exceedance. The applicant may use these funds to implement District approved emission reduction projects near the project site. Off-site emission reductions should relate to the on-site impacts from the project in order to provide proper "nexus" for the air quality mitigation.

Examples off-site mitigation strategies include, but are not limited to, the following:

- Fund a program to replace uncertified woodstoves with EPA phase II certified woodstoves, gas units or pellet stoves;
- Develop or improve park-and-ride lots;
- Retrofit existing homes in the project area with District-approved natural gas combustion devices;
- Retrofit existing homes in the project area with energy-efficient devices;
- Construct satellite worksites;
- Fund a program to buy and scrap older, higher emission passenger and heavy-duty vehicles;
- Replace/repower transit buses;
- Replace/repower heavy-duty diesel school vehicles (i.e. bus, passenger or maintenance vehicles);
- Fund an electric lawn and garden equipment exchange program;
- Retrofit or repower heavy-duty construction equipment, or on-road vehicles;
- Install bicycle racks on transit buses;
- Purchase VDEC Strategies for local school buses, transit buses or construction fleets;
- Install or contribute to funding alternative fueling infrastructure (i.e. fueling stations for CNG, LPG, conductive and inductive electric vehicle charging, etc.);
- Fund expansion of existing transit services;
- Fund public transit bus shelters;
- Subsidize vanpool programs;
- Subsidize transportation alternative incentive programs;
- Contribute to funding of new bike lanes or paths;
- Install bicycle storage facilities; and
- Provide assistance in the implementation of projects that are identified in city or county Bicycle Master Plans.

Note: On-site mitigation measures are preferred over off-site mitigation measures.

The following information will assist the user in evaluating the fugitive dust and combustion emissions from a project and in proposing appropriate mitigation measures to reduce these impacts to a level of insignificance.

1. Prior to building permit approval, the applicant shall show, on the plans submitted to the Building Department, provisions for construction of new residences, and where natural gas is available, the installation of a gas outlet for use with outdoor cooking appliances, such as a gas barbecue or outdoor recreational fire pits.
2. As mitigation for air quality impacts, a bike lane is required for the project. Prior to approval of a Grading Permit, Improvement Plans, or Design Review approval, the

applicant shall show that a Class 1, 2, or 3 bicycle lane(s) is provided in areas as approved by the Engineering Division and/or the Department of Public Works (or similar divisions within each jurisdiction) , as defined elsewhere in these conditions of approval.

3. Wood burning appliances, including fireplaces and woodstoves, shall not be installed within any residential units associated with this project. Language relating to this restriction shall be included within the project's CC&R's.

4. Diesel trucks shall be prohibited from idling more than five minutes. Prior to the issuance of a Building Permit, the applicant shall show on the submitted building elevations that all truck loading and unloading docks shall be equipped with one 110/208 volt power outlet for every two dock doors. Diesel trucks idling for more than the allotted time shall be required to connect to the 110/208 volt power to run any auxiliary equipment. A minimum 2'x3' signage which indicates "Diesel engine idling limited to a maximum of _____ minutes" shall be included with the submittal of building plans.

5. Prior to design review approval, the applicant shall show that on-site bicycle racks, as required by the District, shall be reviewed and approved by the Design Site Review Committee site review agency.

6. As required by the District, Landscape Plans submitted for Design Review shall include native drought-resistant species (plants, trees and bushes) in order to reduce the demand for irrigation and gas powered landscape maintenance equipment. In addition, a maximum of 25% lawn area will be allowed on site. As a part of the project design, the applicant shall include irrigation systems which efficiently utilize water (e.g., prohibit systems that apply water to non- vegetated surfaces and systems which create runoff). In addition, the applicant shall install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls, rain "shut off" valves, or other devices as reviewed and approved by the Design Site Review Committee.

7. The proposed project estimates significant cumulative air quality impacts. In order to mitigate the project's contribution to long-term emission of pollutants, the applicant shall include one of the following off-site mitigation measures:

    a. Establish mitigation off-site within the same region (i.e. Butte County) by participating in an offsite mitigation program, coordinated through the District. Examples include, but are not limited to: participation in a "Biomass" program that provides emissions benefits; retrofitting, repowering, or replacing heavy duty engines from mobile sources (e.g., busses, construction equipment, on-road heavy duty diesel trucks); or other programs that the project proponent may propose to reduce emissions.

    b. Participate in an Offsite Mitigation Program by paying the equivalent amount of money, which is equal to the project's contribution of pollutants (ROG and NOx), which exceeds the District's threshold of significance. The estimated payment for the proposed project is $_____ based on $17,720 (or current equivalent based on the Carl Moyer Program's most recent cost effectiveness level) per ton for a one year period. The actual amount to be paid shall be determined, and satisfied per current CARB guidelines, at the time of recordation of the Final Map (residential projects), or issuance of a Building Permit (non-residential projects).

    c. Any combination of a, or b, as determined feasible by the District.

NOTE: The above mitigation measure(s) must be satisfied prior to (Choose one): [recordation of the Final Map, issuance of a Building Permit]. In addition, local jurisdictions shall work with the District in order to arrange a method of satisfying any Condition(s) of Approval associated with this mitigation measure.

Alternatively, the applicant can pay a mitigation fee based on the amount of emissions reductions needed to reduce impacts to a less than significant level. The District uses the following general guidelines in calculating the amount of off-site mitigation fees required for a given project:

1. Calculate the operational phase emissions for the project using CALEEMOD, or an equivalent calculation tool approved by the District; include the emission reduction benefits of any onsite mitigation measures included in the project. Any project emissions calculated to be above the District significance thresholds are defined as excess emissions and must be reduced below the emission thresholds by off-site mitigation.
2. Project emissions above the lbs/day threshold must be converted to tons/year and divided by the daily-to-annual equity ratio value of 5.5 to obtain an equivalent tons/year value.

The excess tons/year emissions are then multiplied by the project life (i.e., 50 years for residential projects and 25 years for commercial projects) and the most current cost-effectiveness value as approved for the Carl Moyer grant program.

On-Site Mitigation

Table C-1 summarizes mitigation measures for ozone, particulate matter, diesel particulate matter, and greenhouse gases by project type and pollutant reduced. Note that many measures reduce more than one pollutant. Applicants and lead agencies should make every effort to quantify the reductions made by the mitigation measure.

Table C-1. Standard Mitigation Measures

Land Use Residential (R) Commercial (C) Industrial (I)	Measure Type	Mitigation Measure	Pollutant Reduced Ozone (O) Particulate (P) Diesel Particulate Matter (DPM) Greenhouse Gas (GHG)
R, C, I	Site design, Transportation	Improve job / housing balance opportunities within communities.	O, P, GHG
R, C, I	Site design	Orient buildings toward streets with automobile parking in the rear to promote a pedestrian-friendly environment.	O, P, GHG
R, C, I	Site design	Provide a pedestrian-friendly and interconnected streetscape to make walking more convenient, comfortable and safe (including appropriate signalization and signage).	O, P, GHG
R, C, I	Site design	Provide good access to/from the development for pedestrians, bicyclists, and transit users.	O, P, GHG
R, C, I	Site design	Incorporate outdoor electrical outlets to encourage the use of electric appliances and tools.	O, P, GHG
R, C, I	Site design	Provide shade tree planting in parking lots to reduce evaporative emissions from parked vehicles. Design should provide 50% tree coverage within 10 years of construction using low ROG emitting, low maintenance native drought resistant trees.[1]	O, P, GHG
R, C, I	Site design	Pave and maintain the roads and parking areas.	P
R, C, I	Site design	Driveway design standards (e.g., speed bumps, curved driveway) for self-enforcing of reduced speed limits for unpaved driveways.	P
R, C, I	Site design	Use of an APCD-approved suppressant on private unpaved roads leading to the site, unpaved driveways and parking areas; applied at a rate and frequency that ensures compliance with APCD Rule 401, visible emissions and ensures offsite nuisance impacts do not occur.	P
R, C	Site Design	Development is within 1/4 mile of transit centers and transit corridors.	O, P, GHG
R, C	Site Design	Design and build compact communities in the urban core to prevent sprawl.	O, P, GHG
R, C	Site Design	Increase density within the urban core and urban reserve lines.	O, P, GHG
R, C	Site Design	For projects adjacent to high-volume roadways or railroad idling zones, design project to include provide effective buffer zone between the source and the receptor.	DPM
R, C	Site Design	For projects adjacent to high-volume roadways, plant vegetation[2] between receptor and roadway.	DPM, P
R	Site Design	No residential wood burning appliances.	O, P, GHG
R, C, I	Site design, Transportation	Incorporate traffic calming modifications to project roads, such as narrower streets, speed platforms, bulb-outs and intersection designs that reduce vehicles speeds and encourage pedestrian and bicycle travel.	O, P, GHG

Table C-1. Standard Mitigation Measures

Land Use Residential (R) Commercial (C) Industrial (I)	Measure Type	Mitigation Measure	Pollutant Reduced Ozone (O) Particulate (P) Diesel Particulate Matter (DPM) Greenhouse Gas (GHG)
R, C, I	Site design, Transportation	Increase number of connected bicycle routes/lanes in the vicinity of the project.	O, P, GHG
R, C, I	Site design, Transportation	Provide easements or land dedications and construct bikeways and pedestrian walkways.	O, P, GHG
R, C, I	Site design, Transportation	Link cul-de-sacs and dead-end streets to encourage pedestrian and bicycle travel to adjacent land uses.	O, P, GHG
R, C, I	Site design, Transportation	Project is located within one-half mile of a 'Park and Ride' lot or project installs a 'Park and Ride' lot with bike lockers in a location of need defined by SLOCOG.	O, P, GHG
C, I	Site design, Transportation	Provide onsite housing for employees.	O, P, GHG
C, I	Site design, Transportation	Implement on-site circulation design elements in parking lots to reduce vehicle queuing and improve the pedestrian environment.	O, P, GHG
C, I	Site design, Transportation	Provide employee lockers and showers. One shower and 5 lockers for every 25 employees are recommended.	O, P, GHG
C, I	Site design, Transportation	Parking space reduction to promote bicycle, walking and transit use.	O, P, GHG
R	Site design	Tract maps resulting in parcels of one-half acre or les shall orient at least 75% of all lot lines to create easy due south orientation of future structures.	GHG
R	Site design	Trusses for south-facing portions of roofs shall be designed to handle dead weight loads of standard solar-heated water and photovoltaic panels. Roof design shall include sufficient southfacing roof surface, based on structures size and use, to accommodate adequate solar panels. For south facing roof pitches, the closest standard roof pitch to the ideal average solar exposure shall be used.	O, GHG
R, C, I	Energy efficiency	Increase the building energy rating by 20% above Title 24 requirements. Measures used to reach the 20% rating cannot be double counted.	O, GHG
R, C, I	Energy efficiency	Plant drought tolerant, native shade trees along southern exposures of buildings to reduce energy used to cool buildings in summer.[5]	O, GHG
R, C, I	Energy efficiency	Utilize green building materials (materials which are resource efficient, recycled, and sustainable) available locally if possible.	O, DPM, GHG
R, C, I	Energy efficiency	Install high efficiency heating and cooling systems.	O, GHG

Table C-1. Standard Mitigation Measures

Land Use Residential (R) Commercial (C) Industrial (I)	Measure Type	Mitigation Measure	Pollutant Reduced Ozone (O) Particulate (P) Diesel Particulate Matter (DPM) Greenhouse Gas (GHG)
R, C, I	Energy efficiency	Orient 75 percent or more of homes and/or buildings to be aligned north / south to reduce energy used to cool buildings in summer.	O, GHG
R, C, I	Energy efficiency	Design building to include roof overhangs that are sufficient to block the high summer sun, but not the lower winter sun, from penetrating south facing windows (passive solar design).	O, GHG
R, C, I	Energy efficiency	Utilize high efficiency gas or solar water heaters.	O, P, GHG
R, C, I	Energy efficiency	Utilize built-in energy efficient appliances (i.e. Energy Star®).	O, P, GHG
R, C, I	Energy efficiency	Utilize double-paned windows.	O, P, GHG
R, C, I	Energy efficiency	Utilize low energy street lights (i.e. sodium).	O, P, GHG
R, C, I	Energy efficiency	Utilize energy efficient interior lighting.	O, P, GHG
R, C, I	Energy efficiency	Utilize low energy traffic signals (i.e. light emitting diode).	O, P, GHG
R, C, I	Energy efficiency	Install door sweeps and weather stripping (if more efficient doors and windows are not available).	O, P, GHG
R, C, I	Energy efficiency	Install energy-reducing programmable thermostats.	O, P, GHG
R, C, I	Energy efficiency	Participate in and implement available energy-efficient rebate programs including air conditioning, gas heating, refrigeration, and lighting programs.	O, P, GHG
R, C, I	Energy efficiency	Use roofing material with a solar reflectance values meeting the EPA/DOE Energy Star® rating to reduce summer cooling needs.	O, P, GHG
R, C, I	Energy efficiency	Utilize onsite renewable energy systems (e.g., solar, wind, geothermal, low-impact hydro, biomass and bio-gas).	O, P, GHG
R, C, I	Energy efficiency	Eliminate high water consumption landscape (e.g., plants and lawns) in residential design. Use native plants that do not require watering and are low ROG emitting.	O, GHG
R, C, I	Energy efficiency	Provide and require the use of battery powered or electric landscape maintenance equipment for new development.	O, GHG
C, I	Energy efficiency	Use clean engine technologies (e.g., alternative fuel, electrification) engines that are not subject to regulations.	O, DPM, GHG

Table C-1. Standard Mitigation Measures

Land Use Residential (R) Commercial (C) Industrial (I)	Measure Type	Mitigation Measure	Pollutant Reduced Ozone (O) Particulate (P) Diesel Particulate Matter (DPM) Greenhouse Gas (GHG)
R, C, I	Transportation	Provide and maintain a kiosk displaying transportation information in a prominent area accessible to employees and patrons.	O, P, GHG
R, C, I	Transportation	Develop recreational facility (e.g., parks, gym, pool, etc.) within one-quarter of a mile from site.	O, P, GHG
R, C, I	Transportation	If the project is located on an established transit route, provide improved public transit amenities (i.e., covered transit turnouts, direct pedestrian access, covered bench, smart signage, route information displays, lighting etc.).	O, P, GHG
R, C, I	Transportation	Project provides a display case or kiosk displaying transportation information in a prominent area accessible to employees or residents.	O, P, GHG
R, C, I	Transportation	Provide electrical charging station for electric vehicles.	O, P, GHG
R, C, I	Transportation	Provide neighborhood electric vehicles / car share program for the development.	O, P, GHG
R, C, I	Transportation	Provide bicycle-share program for development.	O, P, GHG
R, C, I	Transportation	Provide preferential parking / no parking fee for alternative fueled vehicles or vanpools.	O, P, GHG
R, C, I	Transportation	Provide bicycle lockers for existing 'Park and Ride' lots where absent or insufficient.	O, P, GHG
R, C, I	Transportation	Provide vanpool, shuttle, mini bus service (alternative fueled preferred).	O, P, DPM, GHG
C, I	Transportation	Provide secure on-site bicycle indoor storage, lockers, or racks.	O, P, GHG
C, I	Transportation	For large developments, provide day care facility on site.	O, P, GHG
C, I	Transportation	Provide on-site bicycle parking both short term (racks) and long term (lockers, or a locked room with standard racks and access limited to bicyclist only) to meet peak season maximum demand. One bike rack space per 10 vehicle/employee space is recommended.	O, P, GHG
C, I	Transportation	On-site eating, refrigeration and food vending facilities.	O, P, GHG
C, I	Transportation	Implement a Transportation Choice Program to reduce employee commute trips. The applicant shall work with Rideshare for free consulting services on how to start and maintain a program.	O, P, GHG
C, I	Transportation	Provide incentives (e.g., bus pass, "Lucky Bucks", etc.) to employees to carpool/vanpool, take public transportation, telecommute, walk bike, etc.	O, P, GHG

Table C-1. Standard Mitigation Measures

Land Use Residential (R) Commercial (C) Industrial (I)	Measure Type	Mitigation Measure	Pollutant Reduced Ozone (O) Particulate (P) Diesel Particulate Matter (DPM) Greenhouse Gas (GHG)
C, I	Transportation	Implement compressed work schedules (i.e., 9–80s or 4–10s).	O, P, GHG
C, I	Transportation	Implement a telecommuting program.	O, P, GHG
C, I	Transportation	Implement a lunchtime shuttle to reduce single occupant vehicle trips.	O, P, GHG
C, I	Transportation	Include teleconferencing capabilities, such as web cams or satellite linkage, which will allow employees to attend meetings remotely without requiring them to travel out of the area.	O, P, DPM, GHG
C, I	Transportation	If the development is or contains a grocery store or large retail facility, provide customers home delivery service in clean fueled vehicles.	O, P, DPM, GHG
C, I	Transportation	At community event centers (i.e., amphitheaters, theaters, and stadiums) provide valet bicycle parking.	O, P, GHG
C, I	Transportation	Implement a “No Idling” program for heavy-duty diesel vehicles, which includes signage, citations, etc.	DPM, GHG
C, I	Transportation	Develop satellite work sites.	O, GHG
C, I	Transportation	Require the installation of electrical hookups at loading docks and the connection of trucks equipped with electrical hookups to eliminate the need to operate diesel-powered TRUs at the loading docks.	DPM, GHG
C, I	Transportation	If not required by other regulations (ARB’s on-road or offroad diesel), restrict operation to trucks with 2007 model year engines or newer trucks.	O, DPM, GHG
C, I	Transportation	If not required by other regulations (ARB’s on-road or offroad diesel), require or provide incentives to use diesel particulate filters for truck engines.	DPM
R	Transportation	Provide storage space in garage for bicycle and bicycle trailers, or covered racks / lockers to service the residential units.	O, P, GHG
R	Transportation	Provide free-access telework terminals and/or wi-fi access in multi-family projects.	O, P, GHG
C	Transportation	Develop core commercial areas within 1/4 to 1/2 miles of residential housing or industrial areas.	O, P, GHG