CEQA

Air Quality Handbook

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

2024

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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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CalEEMod: www.caleemod.com

CEQA Guidelines: www.opr.ca.gov/ceqa/guidelines

California Scoping Plan: www.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan

List of Acronyms

AAQS	Ambient Air Quality Standards
ATCM	Air Toxics Control Measure
BACT	Best Available Control Technology
CAP	Climate Action Plan
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CNG	Compressed Natural Gas
CO	Carbon Monoxide
District	Butte County Air Quality Management District
(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
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
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.

Lead Agency means the public agency which has the principal responsibility for carrying out or approving a project.

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:

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 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 environmental documents where air quality impacts are evaluated, screened, or identified as potentially significant. 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 website (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 March 2024:

Table ES-1. Butte County Ambient Air Quality Attainment Status - March 2024

Pollutant	State Designation	Federal Designation
1-hour ozone	Nonattainment-Transitional	--
8-hour ozone	Nonattainment-Transitional	Nonattainment
Carbon monoxide	Attainment	Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
24-Hour PM10	Nonattainment	Attainment
24-Hour PM2.5	No Standard	Attainment / Maintenance
Annual PM10	Attainment	No Standard
Annual PM2.5	Attainment	Attainment
Source: Butte County Air Quality Management District, 2024		

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 (model 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 upon request.

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 Lead Agency's qualified Climate Action Plan or consistency with a qualified greenhouse gas reduction strategy such as the most recent State Scoping Plan.
Stationary Source GHGs	Same as Operational Thresholds	**No Adopted Threshold.** Recommend compliance with Lead Agency's qualified Climate Action Plan or consistency with a qualified greenhouse gas reduction strategy such as the most recent State Scoping Plan.
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

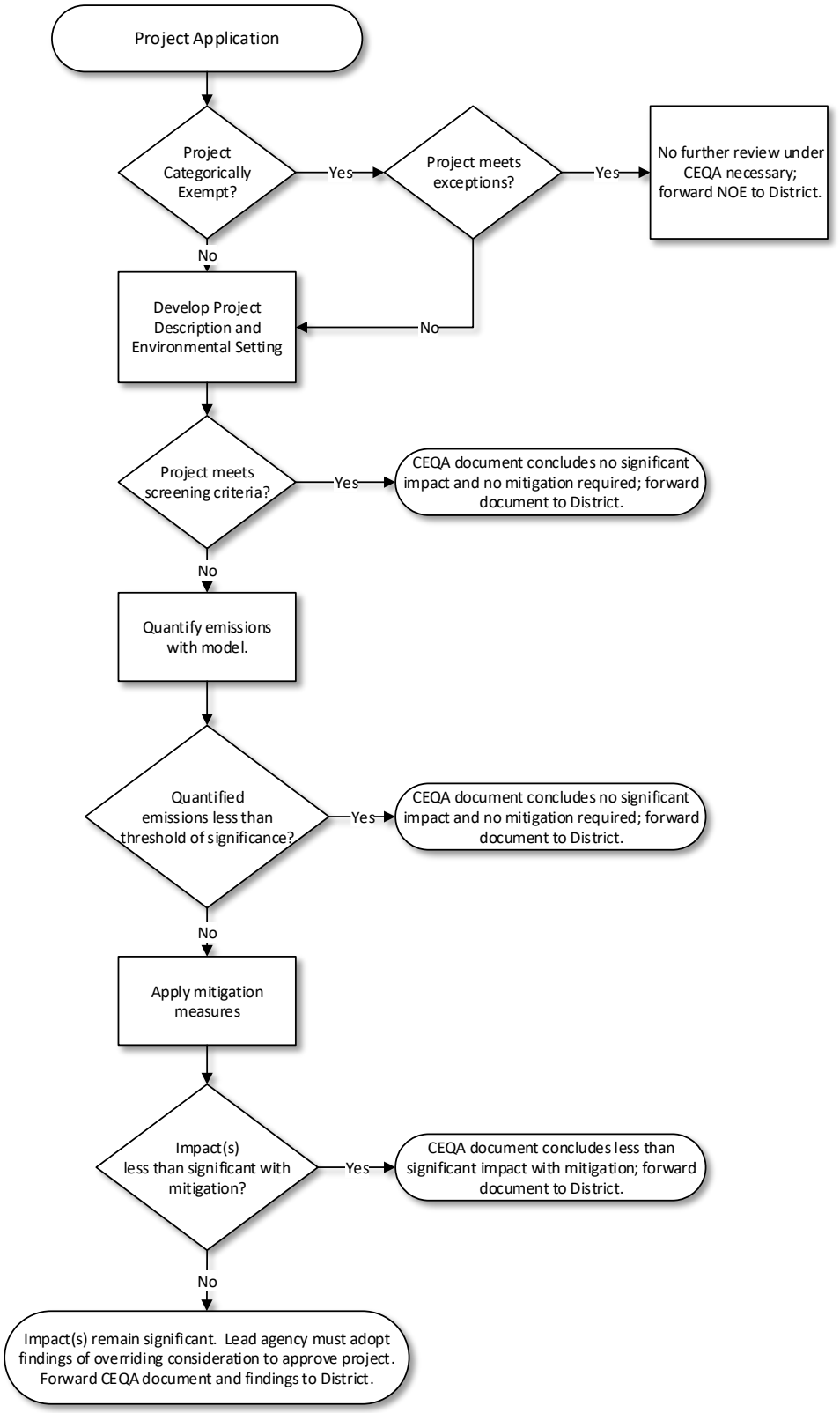

Chart ES-1. General Process for Analysis and Mitigation of Air Quality and Greenhouse Gas Impacts.

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 District has prepared this handbook to assist lead agencies and project applicants in complying with the requirements of 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 or

maintain 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: www.bcaqmd.org/.

1.3 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
www.bcaqmd.org

Notifications, electronic copies, and links to environmental documents can be sent to:
air@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 the most current state climate 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 model, including instructions and tutorials, may be used without charge at:

www.caleemod.com

CalEEMod will make reports available for export as Microsoft Excel (.xls) files, comma-separated value (.csv) files, or Adobe Acrobat PDF files. The native project file (.json) should be available to the District upon request. 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 maximum daily (winter and summer) 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 (available at www.bcaqmd.org/planning). This attainment plan includes population growth information sourced from the California Department of Finance, Demographic Research Unit and VMT growth information sourced from CARB. More detailed regional growth forecasts are available from the most recent Regional Transportation Plan & Sustainable Communities Strategy prepared by the Butte County Association of Governments (BCAG): www.bcag.org.

Note that many of the District's rules (see Appendix A) are intended to meet the attainment goals of the 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 (www.arb.ca.gov/resources/california-ambient-air-quality-standards). Butte County attainment status for each pollutant is given in Table ES-1. 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 Federal 8-hour ozone standard and the State 24-hour PM_{10} standard. Butte County is designated nonattainment-transitional for the State 1-hour and 8-hour ozone standards and designated attainment for the Federal 24-hour $PM_{2.5}$ Standard with a maintenance plan in effect. 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. 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 per CEQA Guideline Section 15064.4. If the lead agency jurisdiction has adopted a qualified 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 most current codified State climate goals. Lead agencies may also reference greenhouse gas reduction strategies, targets, and thresholds established by other jurisdictions, such as the

most current State Scoping Plan. 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 consider a project's total emissions in relation to the most current codified State climate goals.

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:

www.bcaqmd.org/air-qualityA variety of District and regional air quality data, including trends over time for criteria air pollutants and projections, may be obtained at the following CARB web site:

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 CARB's web site (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, CARB 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 criteria emissions, the District recommends that PM_{10} and ozone precursors (NOx & ROG) 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	225 units
Multi-Family (Low Rise) Residential	300 units
Commercial	45,000 square feet
Educational	90,000 square feet
Industrial	500,000 square feet
Recreational	7,400 square feet
Retail	25,000 square feet

1. Screening levels were created using CalEEMod 2022.1.1.21. Model runs were conducted for incorporated and unincorporated areas of Butte County resulting in peak winter, summer, and annual emissions. The scenario with the highest criteria emissions was used for screening.

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 ensure 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_{10}	ROG	NOx	PM_{10}
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. Most sources include default values based upon local and statewide surveys and studies. Although applicants can simply use the default settings provided by the model, the District recommends using detailed project-specific data to achieve the

most accurate estimate possible. Deviations from default values should be included in the exported CalEEMod report and discussed in the environmental document. A general summary in the use of CalEEMod is provided in the following sections. More specific guidance, a user guide, and video tutorials are available at the CalEEMod web site: www.caleemod.com.

Other freely available emissions analysis aids include EMFAC (developed by CARB) and the EPA document AP-42 "Compilation of Air Pollutant Emission Factors." For linear construction projects, such as pipeline, road or levee work, CalEEMod now has capabilities to model linear land use types.

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 standard construction phases consist of demolition, site preparation, grading, building construction, paving, and architectural coatings. There is also the ability to include linear construction phases and trenching phases. 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, paving, and architectural coatings. Each of these emission sources, in turn, provides additional options to characterize the source.

4.4.3 Operational Emissions

CalEEMod evaluates operational emissions associated with mobile sources (VMT, emissions by fleet mix, road dust), area sources (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.

One CalEEMod default area source value which could have a significant impact on project emissions is "hearth fuel combustion." Projects with wood-burning devices should not rely on Table 4.1 to determine that a project will have less-than-significant impacts for criteria air pollutants.

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.

CalEEMod contains a submodule for stationary point sources such as emergency generators, fire pumps, and boilers. There is also a User Defined Screen for project sources not covered by other modules or screens. The appropriate emission factors and calculation methods for many sources of air pollution are contained in the federal Environmental Protection Agency publication, Compilation of Air Pollutant Emission Factors, AP-42 (latest edition available at www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors).

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. The maximum daily construction emissions should be used when comparing against the daily construction thresholds. The annual average construction emissions may be used to compare to the annual Threshold, if applicable. 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

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]. A discussion of on- and off-site mitigation measures for minimizing construction and operational emissions of criteria air pollutants is provided in Appendix C.

[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.

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 over 200 TACs on the California Air Toxics Program's list which may be accessed at: https://ww2.arb.ca.gov/resources/documents/carb-identified-toxic-air-contaminants.

TACs are not classified as criteria air pollutants 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.

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.

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.

In 2015, the California Supreme Court ruled that lead agencies are not required by CEQA to analyze the impact of the existing environmental conditions on a project's future users for a Type B project (*California Building Industry Association v. Bay Area Air Quality Management District*). It is the lead agency's discretion to determine whether a Type B project shall be required to prepare a health risk assessment.

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

https://ww2.arb.ca.gov/resources/documents/airborne-toxic-control-measures

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 a Type A project is proposed:

1. Determine if the project is categorically exempt from CEQA;
2. Identify sources, receptors and impact area (project radius);
3. Using screening methods, calculate acute, chronic, and cancer risk;
4. 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
5. Conduct a refined screening (health) risk assessment; and,
6. 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.

Some projects that would otherwise be categorically exempt from CEQA 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. Although Type B projects are generally not required to be analyzed in CEQA, CEQA Guidelines Section 15186 includes special requirements for proposed school projects within ¼ mile of a source of TACs.

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 developed by federal, state, or local air quality agencies to decide if further quantification through modeling is necessary to determine impact significance. 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.

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:

https://www.epa.gov/scram/air-quality-dispersion-modeling-screening-models

AERSCREEN, based on the more robust AERMOD model (American Meteorological Society/Environmental Protection Agency Regulatory 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:

https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-modeling-tools

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.

5.5 Impact Analysis and Determining Significance

5.5.1 Modeling Approaches

When screening indicates that a project may result in 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. Lead agencies may reference guidance documents developed by other air districts, CARB, and the US EPA. Applicants and lead agencies are encouraged to consult the District in regards to the screening and modeling of TACs. The District maintains meteorological data for the Chico area and the Oroville area for use in AERMOD which is available upon request.

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.

The Office of Environmental Health Hazard Assessment (OEHHA) maintains a Guidance Manual for Preparation of Health Risk Assessments at:

www.oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

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 and TACs in general are provided in Appendix C.

6 EVALUATION OF GREENHOUSE GASES

6.1 Impacts to Global Climate Change Subject to Review

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.

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 relevant qualified Climate Action Plans and codified state GHG targets applicable to the proposed project.

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.

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, the City of Oroville, 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. 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.

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 format if requested. 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 determining 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. In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.

6.4 Mitigation for Impacts Related to Greenhouse Gases

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.

Resources for standard mitigation measures – many of which reduce emissions of GHGs and other pollutants – are provided in Appendix C.

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:

https://www.airquality.org/LandUseTransportation/Documents/Ch7ReductionMeasuresFINAL6-2014.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 several 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.

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 available at www.bcaqmd.org/resources-education/noa/. If a project is within 1,000 feet of ultramafic rock units, 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 Requirements

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 including map resources of areas known to contain NOA is available at the following District web site:

www.bcaqmd.org/resources-education/noa/

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 (CAA) 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 CAA 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:

https://ww2.arb.ca.gov/resources/documents/laws-and-regulations.

The CCAA (Division 26 of the state Health and Safety Code) is administered by the California Air Resources Board (CARB). 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 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 FCAA;
- 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 available at https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards. 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 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 $PM_{2.5}$.

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.

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.

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:

Assembly Bill (AB) 32 (Nuñez, Chapter 488, Statutes of 2006), requires statewide greenhouse gas reductions to 1990 levels by 2020 and continued reductions beyond 2020. The law requires the California Air Resources Board (CARB) to establish a program to track and report greenhouse gas emissions; approve a scoping plan for achieving the maximum technologically feasible and cost effective reductions from sources of greenhouse gas emissions; adopt early reduction measures to begin moving forward; and adopt, implement and enforce regulations to ensure the required reductions occur.

Senate Bill (SB) 97 (Sutton, Chapter 185, Statutes 2007) 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.

SB 375 (Stienberg, Chapter 728, Statutes of 2008) 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.

SB 32 (Pavley, Chapter 249, Statutes of 2016) codifies the 2030 emissions reduction goal by requiring a reduction goal of 40 percent below 1990 levels by 2030.

SB 1383 (Lara, Chapter 395, Statutes of 2016) developed targets to reduce methane and hydrofluorocarbons (HFC) emissions by 40 percent by 2030 and anthropogenic black carbon emissions by 50 percent. CARB developed the Short-Term Climate Pollutant Strategy to implement the requirements of SB 1383. More information about the strategy is available at https://ww2.arb.ca.gov/our-work/programs/slcp/about.

Executive Order #B-55-18 establishes a statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and to achieve and maintain net negative emissions thereafter.

Executive Order #S-01-07 establishes targets for the transportation sector to support the state in its goal to achieve carbon neutrality by 2045. The Executive Order also tasked CARB to develop and propose regulations that require increasing volumes of zero-electric passenger vehicles, medium- and heavy-duty vehicles, drayage trucks, and off-road vehicles toward their corresponding targets of 100 percent zero-emission by 2035 or 2045.

Assembly Bill (AB) 1279 (Muratsuchi, Chapter 337, Statutes of 2022), requires the state to achieve net zero greenhouse gas emissions as soon as possible, but no later than 2045, and achieve and maintain net negative greenhouse gas emissions thereafter.

California's Scoping Plan is a comprehensive strategy that CARB develops and updates at least once every five years, as required by AB 32. The most recent Scoping Plan was adopted in 2022 and provides the framework to enact California's greenhouse gas legislative goals. Appendix D of the 2022 Scoping Plan discusses the intersection of local planning efforts and the Scoping Plan. The most current Scoping Plan and previous Scoping Plans are available at https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan.

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. In late 2018, the Natural Resources Agency adopted further revisions to the State CEQA Guidelines (Section 15064.4) that are intended to reflect recent case law and existing practice.

For more information, including the most recent CEQA & Climate Change Technical Advisory, see the Office of Planning and Research CEQA and Climate Change web site: https://opr.ca.gov/ceqa/ceqa-climate-change.html

A-3 Regional and Local Air Quality Regulation and Policies

Sacramento Valley Air Basin

The California Air Resources Board (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 (CCAA) 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, 2012, 2015, 2018 and 2021 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 2021 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 here and at https://bcaqmd.org/planning. 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 CCAA.

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 federal CAA requirements. The District's rules and regulations may be accessed on CARB's District Rules web site at: https://ww2.arb.ca.gov/current-air-district-rules. 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 with the District 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 healthy air quality is achieved 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:

https://www.biggs-ca.gov/City-Services/Building--Planning

Butte County:

https://www.buttecounty.net/367/Butte-County-General-Plan-2040

City of Chico:

https://chico.ca.us/general-plan-other-planning-documents

City of Gridley:

http://gridley.ca.us/government-and-departments/departments/planning-services

Town of Paradise:

https://www.townofparadise.com/planning/page/town-paradise-general-plan

City of Oroville:

https://www.cityoforoville.org/services/planning-development-services-department/planning-division/planning-documents

Local Climate Action Plans

Policies related to greenhouse gases are also addressed in a jurisdiction's Climate Action Plan. Climate action plans are comprehensive roadmaps that outline the specific activities that an agency will undertake to reduce greenhouse gas emissions. Links to current Climate Action Plans for jurisdictions within Butte County are provided below:

Butte County:

https://www.buttecounty.net/344/Climate-Action-Plan

City of Chico:

https://chico.ca.us/general-plan-other-planning-documents

City of Oroville:

https://www.cityoforoville.org/services/planning-development-services-department/planning-division/planning-documents

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

Environmental Setting & Air Quality Trends

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 11 county SVAB 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 SVAB.

In Butte County, mobile vehicle emissions are the primary source of oxides of nitrogen (NOx), a precursor to ozone development. Wood combustion is the largest source of fine particulate matter (PM2.5) in Butte County, particularly residential woodstove & fireplace use and managed open burning. Area wildfires can also contribute a large amount of ozone precursors and particulate matter when active.

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. 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, high pressure conditions aloft can cause sinking air to form a subsidence inversion or "lid" over the region, confining pollution within a shallow layer near the ground that leads to photochemical smog (ozone) and visibility problems. The transport of pollutants near the top of the "lid" causes higher ozone impacts in foothill areas of Butte County compared with the valley floor. Because ozone production requires sunlight as part of the chemical reaction, ozone concentrations are highest from late spring through early fall.

On stagnant nights during the late fall and winter, air near the ground cools while the air above remains relatively warm resulting in little air movement underneath the inversion. Concentrations of PM2.5 can become elevated in populated areas of Butte County when stagnant conditions persist, particularly on the valley floor.

The most recent Air Quality Attainment Plan for the NSVAB which is updated every three years includes meteorology, population, and VMT growth data for the region and Butte County and is available at www.bcaqmd.org/planning.

B-2 Monitoring Air Quality

CARB monitors criteria air pollutants at three stations in Butte County:

- Chico – East Avenue (Ozone, PM2.5, PM10, NO2, CO, Toxics);
- Paradise - Clark Avenue (Ozone, PM2.5);
- Gridley - Cowee Avenue (PM2.5 only).

The Paradise - Clark Avenue monitoring location was established in July 2023 after consolidating the Paradise – Theater site and the Paradise – Airport site. Both ozone monitoring locations are regulatory monitors, meaning that their data are compared against the NAAQS to establish Butte County's attainment status. Chico – East Avenue's PM2.5 and PM10 monitors are Butte County's regulatory monitors for particulate matter. The PM2.5 monitors at Paradise – Clark Avenue and Gridley – Cowee Avenue are not regulatory monitors however they are helpful for tracking air quality conditions in those communities and for public outreach.

B-3 Regional and Local Air Quality Trends

Site-specific, Butte County-wide, and regional air quality data and trends are available at the following CARB web site: www.arb.ca.gov/adam. The District also publishes an Annual Air Quality Report for Butte County and makes that available at: www.bcaqmd.org/air-quality.

Ozone concentrations in Butte County peaked in the early 2000s with a three-year Design Value of 0.089ppm in 2002. By 2018, ozone concentrations were improved in Butte County however the county was still designated nonattainment for the 2015 8-hour ozone NAAQS. Butte County was able to achieve the 8-hour ozone NAAQS of 0.070ppm by the August 2021 deadline.

Butte County has continued to meet the 24-hour PM2.5 NAAQS since 2013 when the US EPA officially recognized that Butte County's monitoring data showed attainment of the standard. The US EPA officially designated Butte County as attainment with the 24-hour PM2.5 NAAQS in August 2018. Despite steadily improving ambient air quality conditions in Butte County on average, wildfire smoke impacts can contribute to elevated concentrations of ozone and particulates while area wildfires remain active.

APPENDIX C

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

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.
- Implement CARB-verified diesel emission control strategies as needed to comply with the State In-Use Off-Road Regulation and Truck and Bus Regulation.
- To the extent feasible, truck trips shall be scheduled during non-peak hours to reduce peak hour emissions.
- 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;

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 www.arb.ca.gov/resources/documents/airborne-toxic-control-measures).
- 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/our-work/programs/atcm-to-limit-vehicle-idling.

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.

In the latest version of CalEEMod there are options to select construction activities that will be incorporated into the project by default, such as watering exposed areas, imposing speed limits on unpaved roadways, and cleaning dust from paved roads. Options needed to comply with District Rule 205 should be selected and controlled emissions of construction activities will be applied to the calculation for unmitigated construction emissions.

C-2 Standard On-Site Mitigation Measures for Criteria & GHG Emissions

This section provides a number of on-site mitigation measures intended to reduce criteria air pollutants, diesel PM, and GHGs resulting from construction and operation of a project. If mitigation measures are required to reduce the significance of air quality and GHG impacts from a project, the District recommends that on-site mitigation measures be prioritized over off-site mitigation measures.

The latest version of CalEEMod includes a suite of quantifiable on-site mitigation options for both criteria air pollutants and GHGs. The CalEEMod website (www.caleemod.com) also includes a search tool for measures based on application scale, implementation phase, reduction sector, pollutants reduced, and locational context. Both the model and the search tool reference the CalEEMod *Handbook for Analyzing Greenhouse Gas Emissions Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* which provides detailed information on possible mitigation measures. It should be noted that many of the measures included in CalEEMod include co-benefits and can reduce multiple pollutants.

Many mitigation measures can be selected directly in CalEEMod during the Measures Module. Alternatively, if the desired mitigation measure is not in CalEEMod, user inputs can be altered to demonstrate the effect of the uncommon mitigation measure and the user can create two separate CalEEMod files for comparison.

Construction Phase On-Site Mitigation Measures

The primary criteria pollutants released from construction activities include ozone precursors (NOx and ROG) from heavy-duty vehicles, ozone precursors (ROG) from architectural coatings, and PM from ground-disturbing activities. CalEEMod includes opportunities to incorporate cleaner-than-required heavy-duty equipment, to use low-VOC coatings, and to incorporate administrative and technical measures to reduce fugitive dust emissions. Measures that use cleaner-than-required equipment also provide a reduction in GHG emissions.

Lead agencies and project applicants can consult with the District to discuss on-site mitigation options for the construction phase if not available in CalEEMod.

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.
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.

Operational Phase On-Site 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.

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. Strategies to improve the energy efficiency of both commercial and residential buildings beyond the requirements of the most current California Green Building Standards Code should be considered.

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 an important means of reducing vehicle emissions. The CalEEMod Handbook should be referenced to find mitigation measures involving transit, neighborhood design, trip reduction programs, parking management,

and general land use planning that encourages reduced VMTs. In addition, using cleaner fueled vehicles can reduce the overall emissions without impacting operations.

Lead agencies and project applicants can consult with the District to discuss on-site mitigation options for the operational phase if not available in CalEEMod.

C-3 Off-Site Mitigation Measures

Emissions from large projects that cannot be adequately mitigated with on-site mitigation measures alone may require off-site mitigation in order to reduce air quality and GHG 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 District recommends that off-site reductions for PM occur as close to the project site as possible. Off-site reductions of ozone precursors (such as NOx and ROG) are recommended to be located reasonably close to the project site so that the impacted community is benefited, however reductions in the same county or even air basin can offer benefits to regional ozone concentrations. Off-site mitigation measures to reduce GHG emissions should prioritize local, regional, state, national, then international projects in that order.

Off-site mitigation measures should have emissions reductions that are quantifiable and permanent. The District is available to assist lead agencies and project applicants with reviewing proposed off-site mitigation measures. The District is also available to administer local projects through the development of a Memorandum of Understanding, as described in the following section.

Butte County Air Quality Management District Off-Site Mitigation Program

The District maintains various clean air programs that provide emissions reductions that are permanent, surplus to regulations, quantifiable, and enforceable. Below is a summary of past programs that have been administered and the air pollutants reduced:

- Carl Moyer Memorial Air Quality Standards Attainment Program (NOx, ROG, PM2.5, Diesel PM10, GHGs). The Carl Moyer Program provides incentives to replace older, polluting heavy-duty equipment with cleaner-than-required equipment or zero-emission technology.
- Funding Agricultural Replacement Measures for Emission Reductions - FARMER (NOx, ROG, PM2.5, Diesel PM10, GHGs). The FARMER Program provides incentives to replace older, polluting agricultural equipment with cleaner-than-required equipment.
- Lawn and Garden Equipment Program (NOx, ROG, GHGs). The Lawn and Garden Equipment Program provides vouchers to commercial and residential applicants to replace combustion landscaping equipment with zero-emission battery powered equipment.
- Woodsmoke Reduction Program (NOx, ROG, PM2.5, GHGs). The Woodsmoke Reduction Program provides vouchers to residents with older wood-burning devices to install cleaner-burning or zero-emission heating devices.

Below is the general process of participating in the District's Off-Site Mitigation Program to reduce emissions of criteria pollutants or GHGs.

1. Lead agency and project applicant quantifies the construction-related and operational-related emissions exceeding the relevant threshold after all feasible on-site mitigation measures have been applied.
2. For construction-related emissions, the total amount of emissions requiring off-site mitigation would equal the exceedance in tons per year times the number of years where the threshold is exceeded.
3. For operational-related emissions, the total amount of emissions requiring off-site mitigation would equal the exceedance in tons per year for each exceeding pollutant times the project life (50 years for residential projects, 25 years for non-residential projects). If modeling supports a shorter number of years where operational emissions are expected to exceed the relevant threshold (for example, from improving vehicle emissions over time), then the project life requiring off-site mitigation can be adjusted accordingly.
4. The initial investment into the Off-Site Mitigation Program fund would be based on the most current Carl Moyer Program cost-effectiveness limit (currently $34,000.00 per ton of emissions in 2024) plus 12.5% program administration (also based on the current Carl Moyer Program State Guidelines).
5. The lead agency, the project applicant, the District, and other relevant parties would collaboratively develop a Memorandum of Understanding outlining the required emissions reductions, initial investments, project category priorities, milestones, reporting requirements, and, if appropriate, refunds. The initial investment would be due at the time of recordation of the Final Map (residential projects), or issuance of a Building Permit (non-residential projects).
6. Although the most current Carl Moyer Program cost-effectiveness limit provides a ceiling on the costs per ton of emissions reduced, the District generally funds projects that are more cost-effective than the limit. Actual emissions reductions will be reconciled and remaining funds invested into the District's Off-Site Mitigation Program can be refunded once the target emissions reductions are met.

C-4 Mitigation Measures for Toxic Air Contaminants

Best practices for the reduction of diesel PM, a common toxic air contaminant, are included in C-1 above. Below are mitigation considerations for other sources of TACs.

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 at CARB's Technology Clearinghouse: www.arb.ca.gov/BACT-Tool.

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;
- The Sacramento Metropolitan Air Quality Management District has a guidance document titled *Landscaping Guidance for Improving Air Quality Near Roadways* (www.airquality.org/residents/ceqa-land-use-planning/ceqa-guidance-tools) which can be referenced to implement design ideas for projects near busy roadways.
- 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.

C-5 Mitigation Measures for Other Air Contaminants

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.

Odors

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:

https://www.airquality.org/LandUseTransportation/Documents/Ch7ReductionMeasuresFINAL6-2014.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.